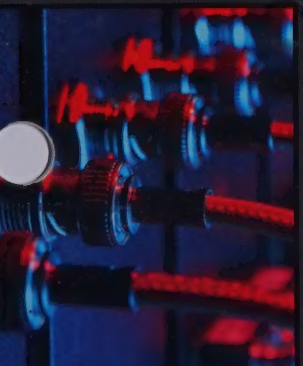
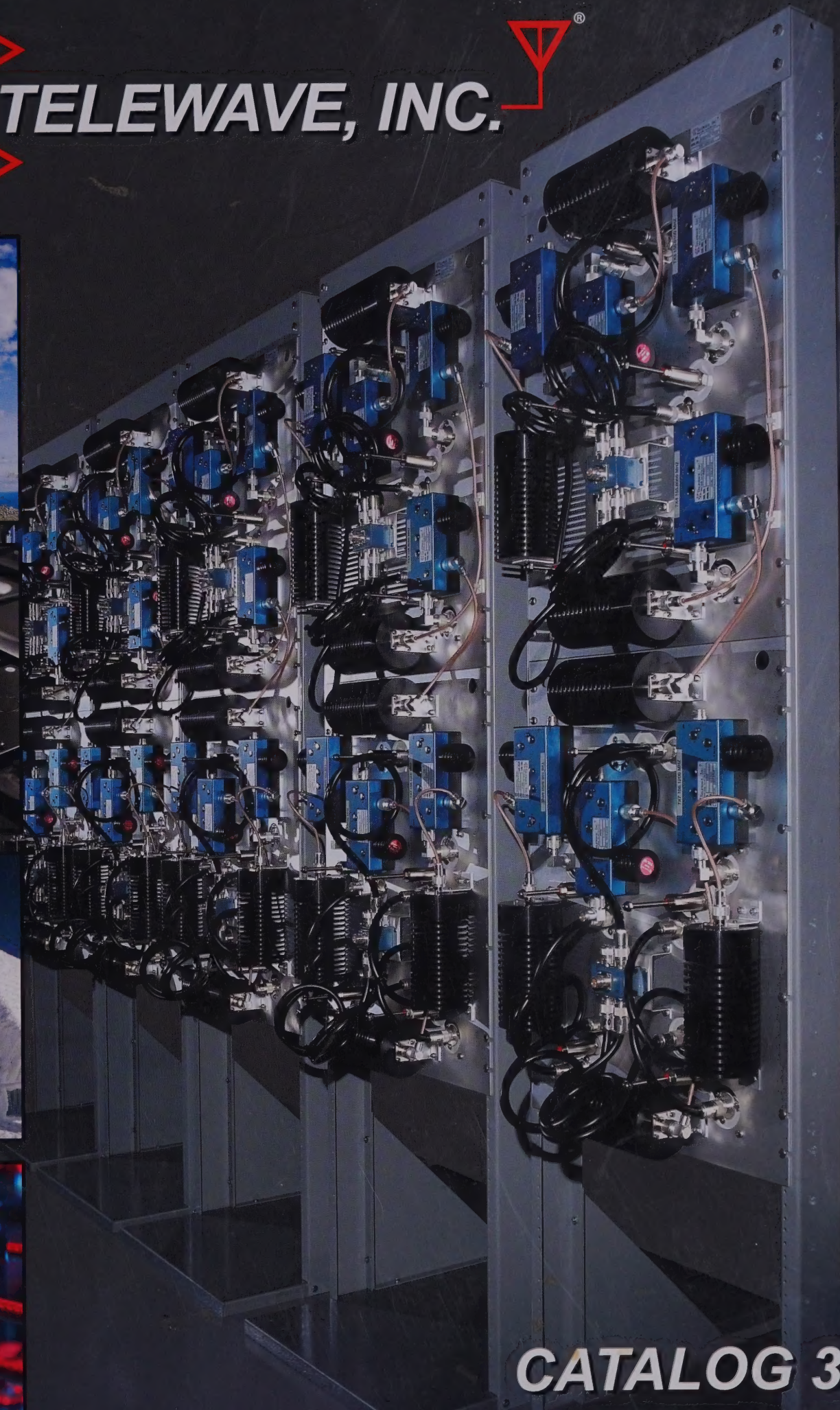
TELEWAVE, INC.®





CATALOG 31

About Telewave

Telewave, Inc. designs and manufactures rugged, high-quality wireless system equipment for domestic and international markets. We support conventional and trunked radio systems, as well as Cellular, SMR, PCS, Trunking, Paging, and Broadcast services. Our customers include public safety providers, local and state governments, federal agencies, wireless system operators, and businesses.

Since 1972, Telewave has focused on the needs of our customers, providing the best American-made wireless system products, with the fastest on-time delivery record in the industry. As pioneers of low-loss combining, Telewave's early reputation as a premier problem solver was made by reorganizing and "cleaning up" some of the most crowded and complex radio transmitter sites in the San Francisco Bay Area. Where off-the-shelf products for interference control often did not exist, Telewave built custom high performance equipment to meet customer requirements. These innovative designs became the foundation of our early product line.

Many equipment manufacturers will not accommodate custom orders or special requirements. Telewave has the engineering expertise and manufacturing flexibility that allows us to quickly modify existing equipment, or design a completely new product line to meet any performance goal. Initial evaluation and consultation have always been provided to customers at no charge.

Telewave products are supported by a full network of US and international sales engineers, representatives, and distributors. Telewave is certified to meet the requirements of ISO 9001:2008, and our commitment to high quality and excellent customer service continues to guide our efforts.

Telewave Sales and Distribution

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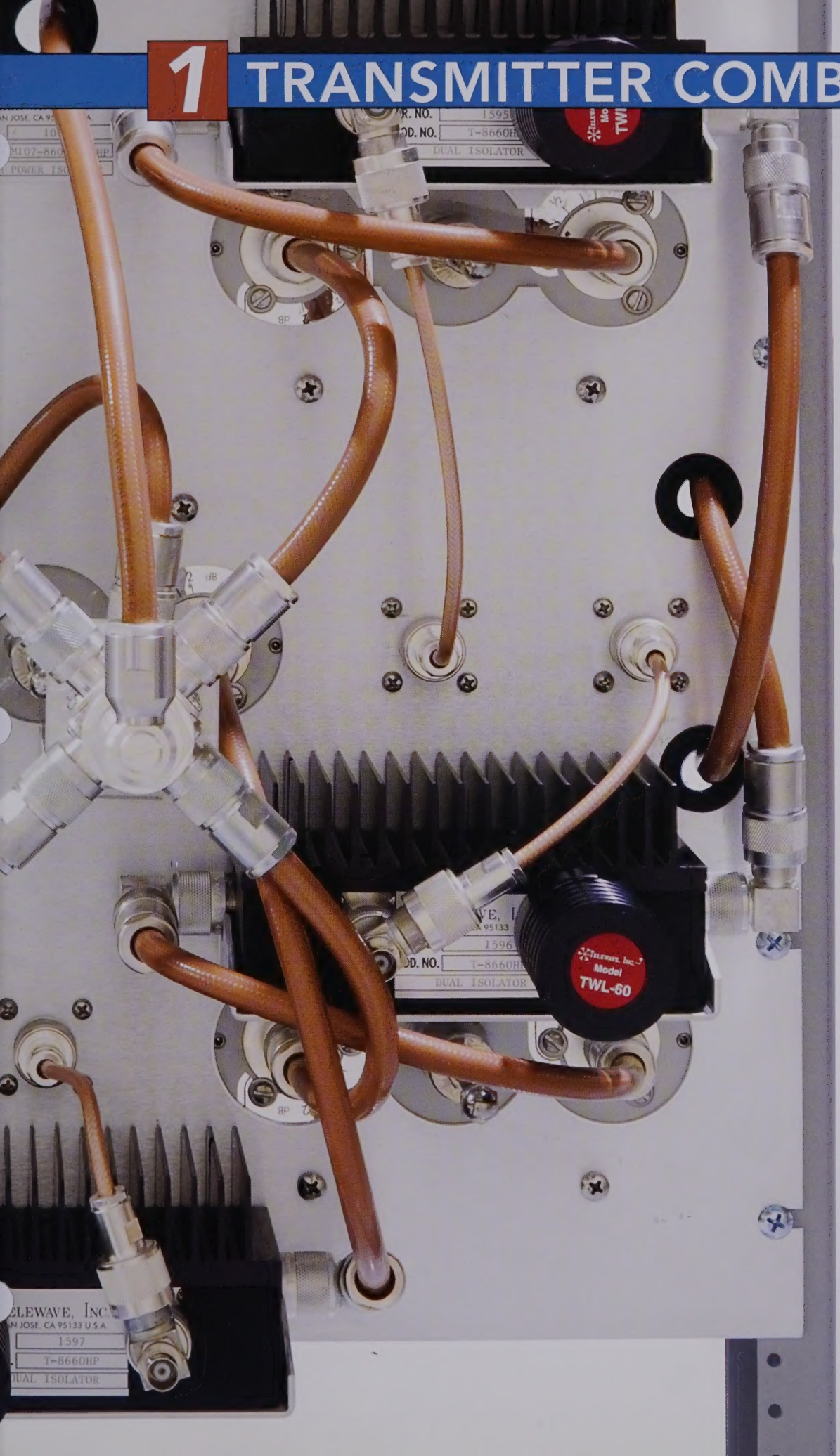
Please visit our website at www.telewave.com/sales.html for a list of current US sales representatives.

CONTENTS

- SECTION 1 TRANSMITTER COMBINING 3
- SECTION 2 RECEIVER MULTICOUPLERS 25
- SECTION 3 POWER MONITORING 59
- SECTION 4 ISOLATORS AND LOADS 67
- SECTION 5 CAVITIES & FILTERS 81
- SECTION 6 DUPLEXERS 135
- SECTION 7 ANTENNAS
  - COLLINEAR 185
  - DIPOLE 221
  - YAGI 249
  - WIDEBAND 281
  - POWER DIVIDERS, COUPLERS 289
- SECTION 8 TECHNICAL NOTES 293
- INDEX 299

1 TRANSMITTER COMBINERS



1 TRANSMITTER COMBINERS

Cavity-Ferrite Low Loss

Low-loss combiners use one or more tuned cavities and a dual-junction isolator for each channel to maximize isolation between transmitters, with the lowest possible insertion loss.

Ceramic

Ceramic enhanced cavities have the same or greater performance as full size cavities, but in a smaller package. This greatly reduces the volume and rack space of combiners which use these cavities.

Hybrid

Hybrid combiners make use of a hybrid coupler and dual isolator for each transmitter. The coupler allows frequencies to be combined with no minimum spacing, but will have higher insertion loss.

Pass-Notch

A pass-notch combiner uses a combination of pass and notch cavities arranged so that each transmitter sees a low impedance path to the antenna, but is isolated from all other transmitters.

TELEWAVE, INC.

20 - 1000 MHz

MODEL 44A, AP
BROADBAND RF WATTMETER

FEATURES

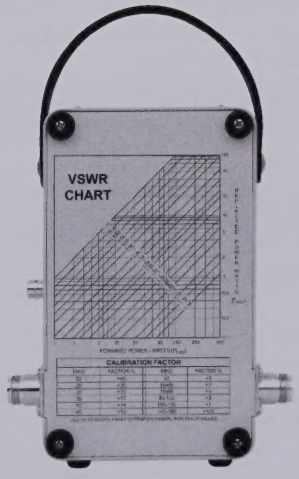
- REQUIRES NO ELEMENTS OR "SLUGS"
- NO BAND SWITCHING
- MEASURES 1 TO 500 WATTS
- 5 POWER RANGES
- 5 WATT FULL SCALE RANGE
- COVERS 20 - 1000 MHz
- MEASURES FORWARD AND REFLECTED POWER
- -40 dB RF SAMPLING PORT
- SHOCK-MOUNTED METER
- LOW TEMPERATURE OPERATION
- QUICK-CHANGE CONNECTORS
- LIGHT WEIGHT: 3 LBS

MODEL 44AP

The Telewave Model 44A/AP RF Wattmeter is a compact, versatile instrument used for direct measurement of forward and reflected RF power in a coaxial transmission line under any load conditions. Wide band capability and dynamic range allows operation without elements, inserts, or bandswitching.

The 20 microamp taut-band meter movement is shock mounted in a rugged, diecast housing, making this instrument ideal for mobile radio installation in aircraft or vehicles, as well as base stations.

Model 44AP includes an RF sampling port, with an output 40 dB below the total transmission line level, for frequency measurement, signal injection, or spectral analysis.



BACK

CARRY CASE (OPTIONAL)

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TWDS-3002 Rev. 7/09

TELEWAVE, INC.

20 - 1000 MHz

MODEL 44A, AP

This wideband instrument covers 20 to 1000 MHz with a power range of 1 to 500 watts. The meter movement can be turned off for rough handling when not in use. A leather carrying strap is provided to facilitate portability. The use of a taut-band meter movement allows operation in cold temperatures.

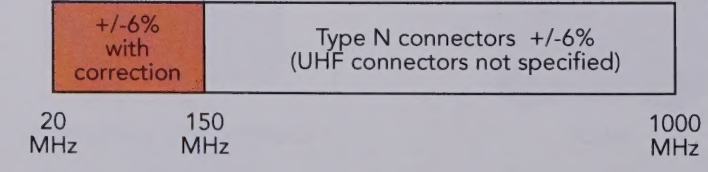
The RF sample port on Model 44AP samples a low level of RF power as it passes through the instrument. This bi-directional port is accessed via a BNC connector located on the side of the meter. It allows injection of a signal into the device under test, or can be used for spectrum analysis and frequency measurements without affecting operation of the meter.

The Model 44A/AP utilizes a set of precision directional detectors which sample forward and reverse CW power flow in a specially engineered section of transmission line. The sampled current is scaled to drive the 20 µA taut band meter. Forward and reflected power can be directly measured by rotating the FWD-REV switch. VSWR (Voltage Standing Wave Ratio) is easily determined by comparing these measurements and using the convenient chart on the back of the instrument.

Five power scales are provided. The 500 watt scale will test most high powered transmitters, while the 5 watt scale makes it simple to tune low powered portables. The excellent stability of this unit and the ability to switch it from one power range to another to check the calibration eliminates the need for a secondary standard to verify calibration.

SPECIFICATIONS	
Frequency range	20-1000 MHz
Full scale power ranges	5, 15, 50, 150 and 500 watts
Impedance, primary line	50 ohms nominal
VSWR (max)	1.1:1
RF sampling port (44AP)	-40 dB +/-2 dB below total power (forward + reverse)
Connectors (input/output) (Quick-Change standard)	N Female standard UHF, DIN, TNC, BNC optional
Sample port	BNC-female
Dimensions (HWD) **in.** **mm**	6.625 x 4 x 3.25 168.3 x 101.6 x 82.6
Weight lbs (kg)	3 (1.36)

METER ACCURACY



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TWDS-3002 Rev. 7/09

LOWBAND COMBINERS

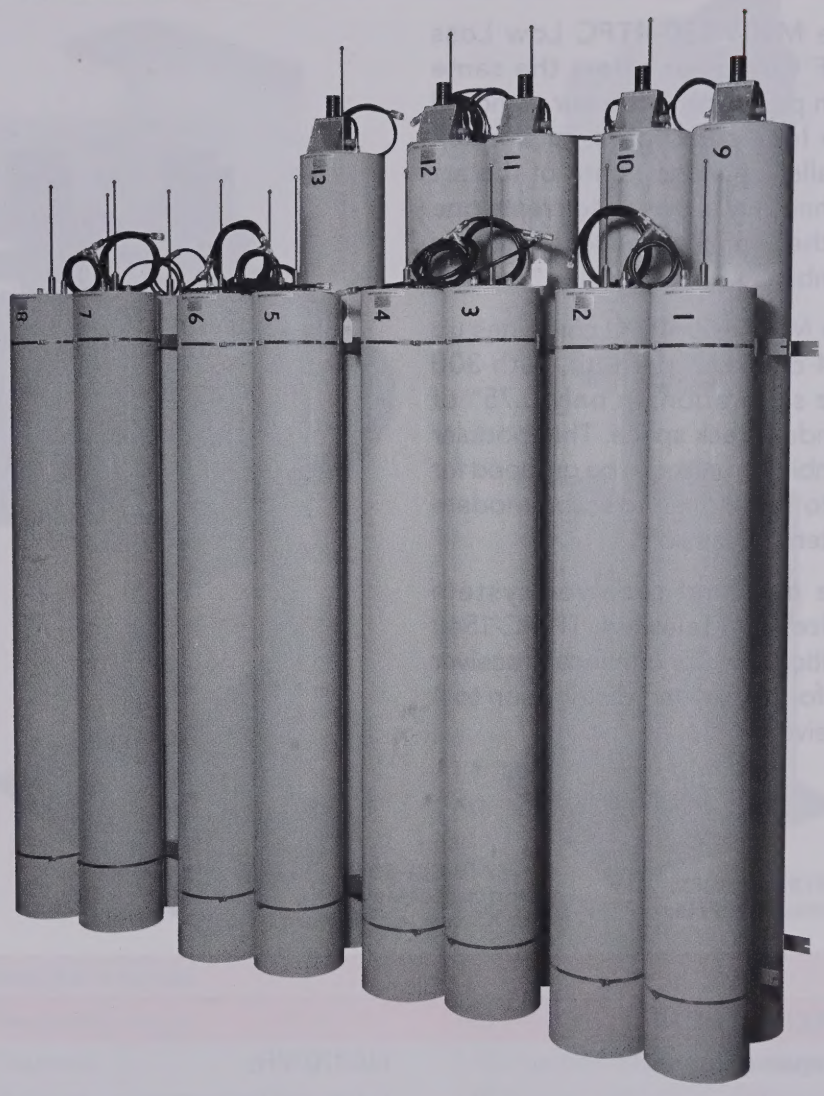
Telewave Lowband and Midband Combiners offer high performance with industry-standard Telewave reliability.

Telewave is one of the few remaining manufacturers of full size, high-"Q" cavity filters between 30 and 88 MHz. These filters can be deployed in a number of configurations for low band combining and receiver filtering.

The M101-030-5T8R series uses 16 cavities to combine 5 transmitters in the 37 MHz band and 8 receivers between 47-49 MHz, with transmitter spacing of only 100 KHz.

Telewave has also designed a unique system to combine 2 transmitters in the 45 MHz band with 100 KHz separation, which employs custom designed Telewave hybrid couplers and a dual-cavity sideband filter.

Lowband systems present a number of operational challenges, but Telewave has the tools to custom design a complete filtering system for any requirement.



M101-030-5T8R

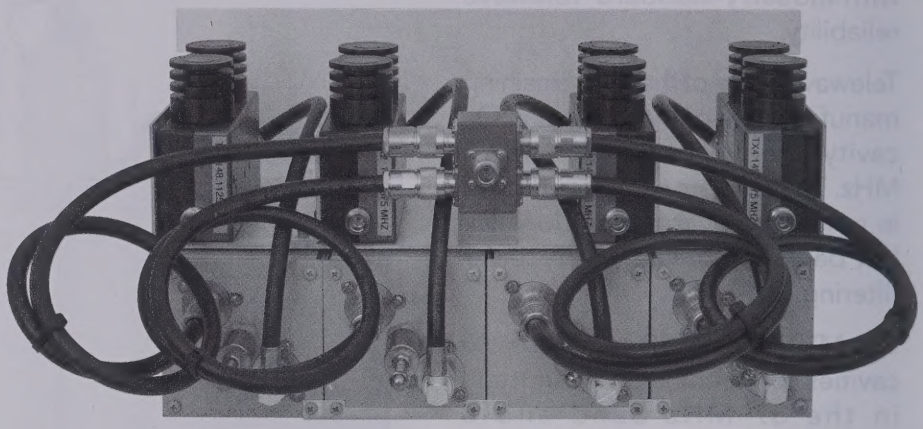
M104-150-4TPC

4 CHANNEL LOW LOSS COMBINER

The M104-150-4TPC Low Loss VHF Combiner offers the same high performance as our standard low loss combiners, in a much smaller package. State of the art technology allows us to create one of the world's smallest low loss combiners.

The M104-150-4TPC combines up to 4 channels per unit, with 300 KHz separation, in only 8.75" of standard rack space. The modular combining units can be grouped for up to 16 channels to accommodate system expansion.

The optional receiver system utilizes the Telewave TPMC-1543 multicoupler for enhanced receiver performance, and distribution to 4 receivers.



SPECIFICATIONS	
Frequency range	148-170 MHz
Channels	1-4 channels into 1 antenna
Channel separation (min)	300 KHz
Input power (max)	100 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.4 dB - 4 ch. at 300 KHz spacing
TX-to-TX isolation (typ.)	75 dB
Antenna to TX isolation (typ.)	70 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	4" square / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. / cm	8.75 x 19 x 12.5 (21.6 x 48.3 x 31.75)
Weight lb. (kg)	32 (14.5)

All specifications subject to change without notice

TWDS-1023 Rev. 2/11

M108-150-TRM SERIES
LOW LOSS VHF COMBINER

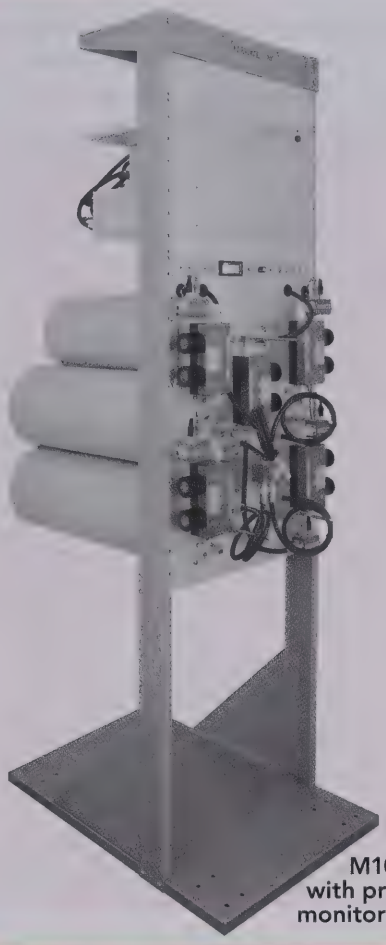
The M108-150-TRM series uses up to ten 8", high "Q" low-loss cavities mounted on a standard 19" x 72" rack. These combiners are available in a vertical or horizontal configuration, depending on site requirements.

Up to 8 cavities can be mounted vertically in two groups, or up to 10 cavities can be mounted horizontally on two 5-channel panels. The vertical configuration is useful for installation in limited space or direct wall mounting. Each cavity also contains internal support for the tuner assembly specifically to enable horizontal mounting.

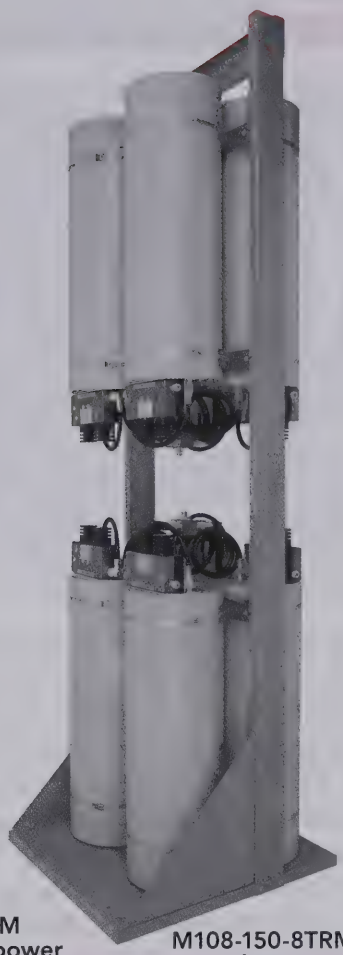
Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around the Telewave compact preselector series, or full-size cavities as needed. Depending on the application, the TPCP-1544C or TPCP-1556 preselector may be mounted in the upper portion of a 72" or 84" rack, along with a 1RU receiver panel for up to 16 channels.

With new narrowband channel assignments, proper filtering is even more critical. The M108-150-TRM series allows operators of high-density VHF systems to take advantage of new technology, and enhance the performance of existing systems.



M108-150-5TRM
with preselector, power monitoring, and RX panel



M108-150-8TRM
vertical mounting

SPECIFICATIONS	
Frequency range	148-174 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	125 KHz
Input power (std. / opt.)	100 / 150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.25 dB - 5 ch. at 250 KHz spacing
	4.0 dB - 5 ch. at 150 KHz spacing
TX-to-TX isolation (typ.)	75 dB
Antenna to TX isolation (typ.)	70 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. / cm	24.5 x 19 x 26 / 62 x 48.3 x 66
Weight lb. (kg)	150 (68.1) 5 ch.

M101-150-8TRM19

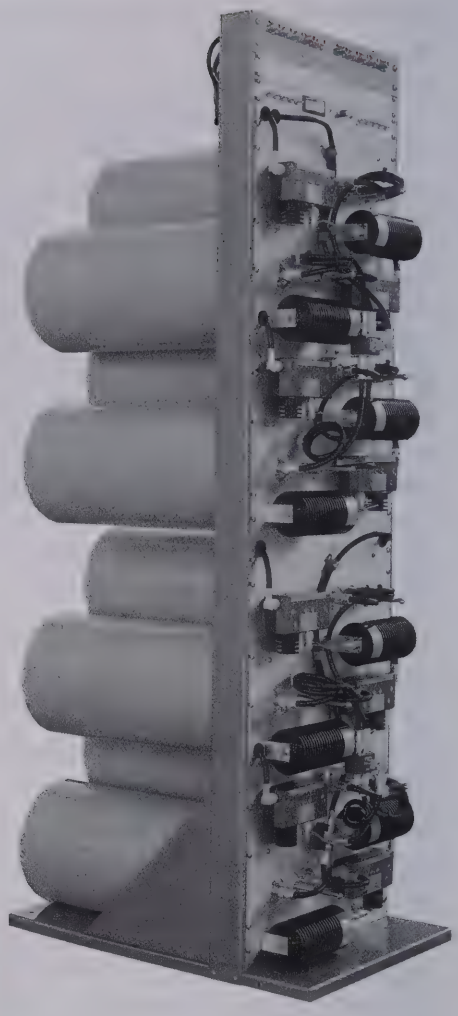
LOW LOSS VHF COMBINER FOR CLOSE SPACING

The M101-150-8TRM19 uses up to eight 10", high "Q" low-loss cavities mounted on a standard 19" x 72" rack. This combiner provides as much as 75 dB isolation for each transmitter, with spacing as close as 105 KHz. Each channel has a separate isolator with 60 Watt load (standard), and all tuning is accessible from the front panel.

Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

The optional receiver system is built around the Telewave compact preselector series. Depending on the application, the TPCP-1544C or 1546C preselector may be integrated directly into the upper portion of the M101-150 84" rack. The 1RU receiver panel also mounts straight into the rack, preserving valuable site floor space.

With new narrowband channel assignments, proper filtering is even more critical. The M101-150-TRM19 series allows operators of high-density VHF systems to take advantage of new technology, and enhance the performance of existing systems.



OPTIONAL 100 WATT LOADS SHOWN

SPECIFICATIONS	
Frequency range	148-174 MHz
Channels	1-8 channels into 1 or 2 antennas
Channel separation (min)	105 KHz
Input power (std. / opt.)	100 / 150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.0 dB - 5 ch. at 250 KHz spacing
	3.8 dB - 5 ch. at 150 KHz spacing
TX-to-TX isolation (typ.)	75 dB
Antenna to TX isolation (typ.)	70 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	10" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Rack dimensions (HWD) in. (cm)	84 x 20 x 26 (214 x 51 x 66)
Weight lb. (kg)	250 (113.5)

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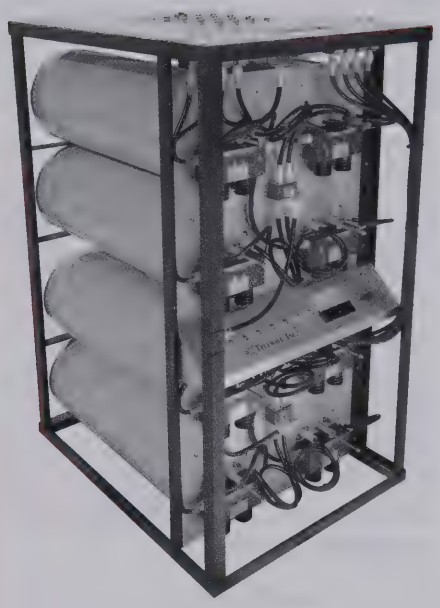
TWDS-1011 Rev. 10/12

M101-150-8TRM

LOW LOSS VHF COMBINER

The Telewave M101-150 Low Loss VHF Combiner is a unique, fully self-contained transmitter and receiver combining system. The custom welded 24" steel frame provides a rugged enclosure for all system components. This integrated design allows channels to be added, retuned, or removed in the field at any time, without disrupting other active channels. The 24" x 48" rack handles up to 8 channels and 1 or 2 antennas.

With new narrowband channel assignments, proper filtering is even more critical. 10-inch High-"Q" cavities with dual isolators provide 75 dB isolation between channels, and the optional receiver panel drives multiple receivers from a single antenna. The PM8C2S wattmeter panel allows forward or reverse power monitoring for each channel, or total power to each antenna. The M101-150 series allows system operators to take advantage of new technology, and enhance the performance of existing systems.



FEATURES

- ALL TUNING FROM FRONT
- 8 TRANSMITTERS INTO ONE ANTENNA
- INTEGRATED RCVR PANEL
- SELF-CONTAINED, BUILDING BLOCK CONCEPT
- LESS THAN 3 dB INSERTION LOSS WITH PROPER FREQUENCY SELECTION
- ALL CONNECTIONS AT TOP OF RACK
- 75 dB TX TO TX PROTECTION
- 130 dB RX INTERMOD PROTECTION WITH RX PNL.
- RF POWER MONITORING FOR ALL CHANNELS AND ANTENNA
- REMOTE TX KEYING
- FIELD TUNABLE

SPECIFICATIONS	
Frequency range	148-174 MHz
Channels	1-8 channels into 1 or 2 antennas
Channel separation (min)	105 KHz
Input power (std. / opt.)	100 / 150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.0 dB - 5 ch. at 250 KHz spacing
	3.8 dB - 5 ch. at 150 KHz spacing
TX-to-TX isolation (typ.)	75 dB
Antenna to TX isolation (typ.)	70 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	10" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	24" rack mount / N Female
Rack dimensions (HWD) in. (cm)	48 x 24 x 31 (122 x 61 x 79)
Weight lb. (kg)	250 (113.5)

TELEWAVE, INC.

400 - 512 MHz

M106-450-4/8TPC

COMPACT TRANSMITTER COMBINER PANELS

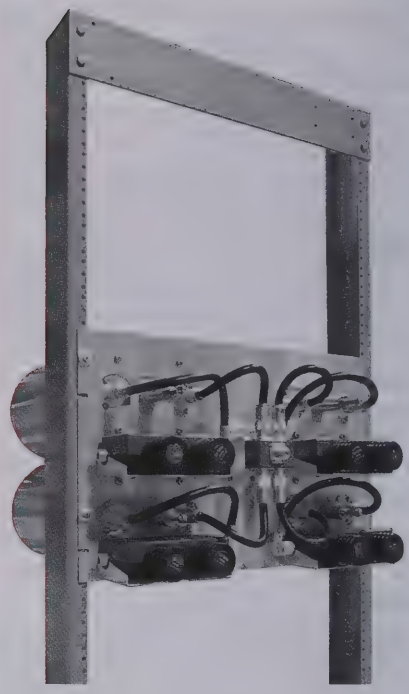
The Telewave M106-450-4TPC and 8TPC Compact Low Loss Combiner Panels are designed for new, narrowband technologies. Six-inch diameter high "Q" cavities and horizontal mounting dual isolators provide high performance in only 7RU (12.25").

All components in these field-expandable combiners are completely passive. This design allows for front panel tuning, simplifing installation and maintenance, and allows for addition of channels without any disruption of service.

These combiners are shipped without racks, for mounting in existing installations.

FEATURES

- ULTRA COMPACT - 4 CH. ONLY 12.25" HIGH
- 1-8 TRANSMITTERS INTO ONE ANTENNA
- LESS THAN 3 dB INSERTION LOSS (4 CH.)
- MODULAR PANELS SIMPLIFY EXPANSION
- COMPLETELY SELF-CONTAINED
- LOW COST PER CHANNEL
- FULLY FIELD TUNABLE
- 80 dB TX TO TX PROTECTION



MAJOR OPTIONS

- HEAVY DUTY 19" RACKS
- POWER MONITORING
- WATTMETER PANEL
- RECEIVER MULTICOUPLER
- EXPANSION KITS TO 8 CHANNELS (M106-450-1T)

SPECIFICATIONS	
Frequency range	400-512 MHz
Channels	1-8 channels into 1 or 2 antennas
Channel separation (min)	300 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.9 dB - 4 ch. at 300 KHz spacing
	3.4 dB - 8 ch. at 300 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	6" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	12.25 x 19 x 17 (31.1 x 48.3 x 43.2)
Weight lb. (kg)	4 ch. 60 (27.2)

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TWDS-1031 Rev. 7/09

M107-250, 350, 450 TP SERIES
LOW LOSS TRANSMITTER COMBINER PANELS

Telewave M107-250, -350, and -450 Low Loss Combiner panels are designed for new, narrowband technologies.

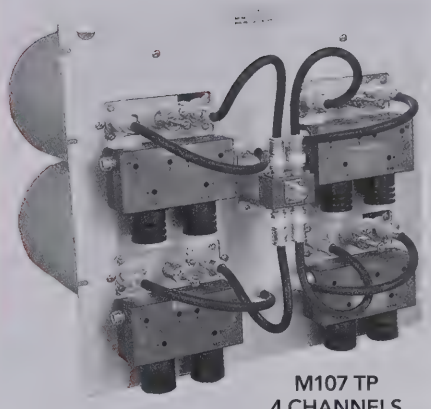
All components in these field-expandable combiners are completely passive. This design allows front panel tuning, simplifies installation and maintenance, and allows for addition of channels without any disruption of service.

Each panel fits a standard 19" rack, and allows up to 4 or 6 channels. Additional channels can be added to a panel without disrupting existing users.

These combiners are shipped without racks, for mounting in existing installations. The actual height and depth of each panel can vary with frequency. Lower frequencies require longer cavities.

FEATURES

- ALL TUNING FROM THE FRONT
- 4 OR 6 CHANNELS PER PANEL INTO ONE ANTENNA
- LESS THAN 3 dB INSERTION LOSS
- MODULAR PANELS SIMPLIFY EXPANSION
- LOW COST PER CHANNEL
- FULLY FIELD TUNABLE
- 80 dB TX TO TX PROTECTION



M107 TP
4 CHANNELS

M107 TP
6 CHANNELS

SPECIFICATIONS	
Frequency ranges	200-512 MHz
Channels	4 or 6 channels into one antenna
Channel separation (min)	250 KHz
Input power (std. / opt.)	100 / 150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.25 dB at 275 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	7" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dim. typ. (HWD) in. (cm)	4 ch. 17.5 x 19 x 26 (44.5 x 48.3 x 66)
(Panel height varies with freq.)	6 ch. 24.5 x 19 x 26 (62.2 x 48.3 x 66)
Weight lb. (kg)	4 ch. 42 (19.1) / 6 ch. 58 (26.3)

TELEWAVE, INC.

200 - 512 MHz

M107-250-8TRM	200-300 MHz
M107-350-8TRM	300-400 MHz
M107-450-8TRM	400-512 MHz

M107-250, 350, 450 TRM SERIES
EXPANDABLE LOW LOSS TRANSMITTER COMBINERS

Telewave M107-250, -350, and -450 Low Loss Combiners are designed for new, narrowband technologies. All components in these field-expandable combiners are completely passive, with the exception of the optional receiver distribution amplifier. The compact layout is enclosed in a rugged steel frame.

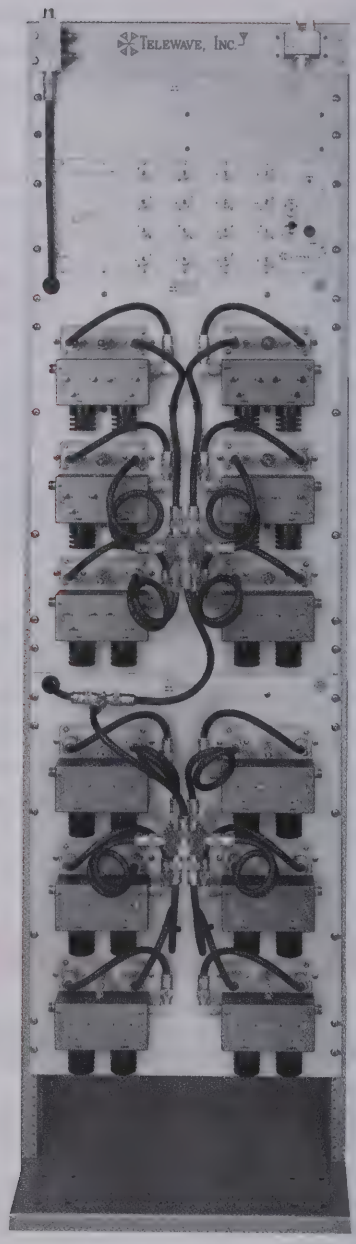
Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around the Telewave compact preselector series, or full-size cavities as needed. Depending on the application, a 4 or 6 cavity compact preselector may be mounted in the upper portion of a 72" or 84" rack, and a 1RU receiver panel with 8 or 16 channels.

To meet international requirements, special configurations and expansion kits are available.

FEATURES

- ALL TUNING FROM THE FRONT
- UP TO 14 TRANSMITTERS INTO ONE ANTENNA
- LESS THAN 3 dB INSERTION LOSS
- ALL CONNECTIONS AT TOP OF RACK
- COMPLETELY SELF CONTAINED
- LOW COST PER CHANNEL
- FULLY FIELD TUNABLE
- 80 dB TX TO TX PROTECTION



Shown with Optional Receiver Distribution Panel

SPECIFICATIONS	
Frequency ranges	200-512 MHz
Channels	1-14 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (std. / opt.)	100 / 150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.25 dB at 275 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	7" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Rack dimensions (HWD) in. (cm)	72 x 20 x 26 (183 x 51 x 66) (Depth varies with frequency)
Weight lb. (kg)	200 (91)

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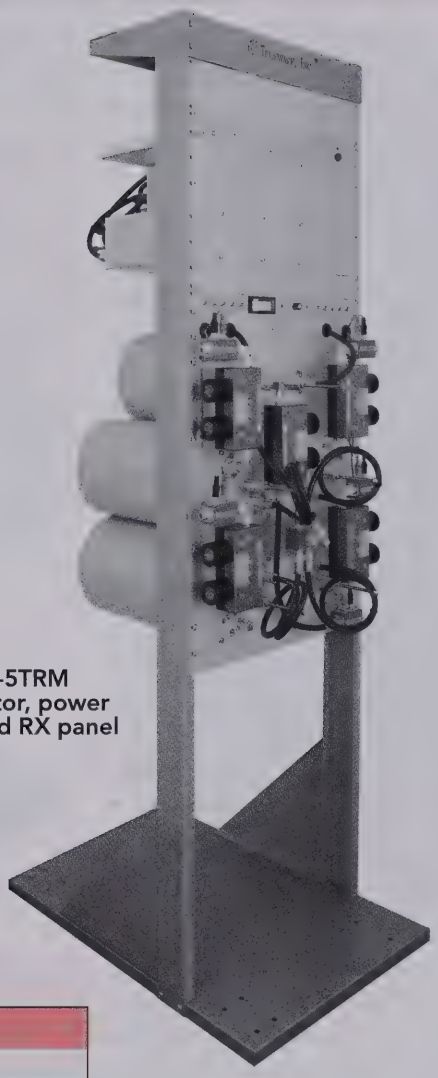
TWDS-1001 Rev. 11/12

M108-450-TRM SERIES
LOW LOSS UHF COMBINER

The M108-450-TRM series uses up to ten 8", high "Q" low-loss cavities mounted on a standard 19" x 72" rack. Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around a Telewave UHF preselector. Depending on the application, the TPCP-4544 or TPCP-4546 preselector may be mounted in the upper portion of a 72" or 84" rack, and a 1RU receiver panel with 8 or 16 channels.

With new narrowband channel assignments, proper filtering is even more critical. The M108-450-TRM series allows operators of high-density UHF systems to take advantage of new technology, and enhance the performance of existing systems.



M108-450-5TRM with preselector, power monitoring, and RX panel

SPECIFICATIONS	
Frequency range	400-512 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.5 dB - 5 ch. at 250 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	24.5 x 19 x 14 (62 x 48.3 x 35.6)
Weight lb. (kg)	150 (68.1) 5 ch.

M108-450-TRM3Q SERIES
LOW LOSS UHF COMBINER

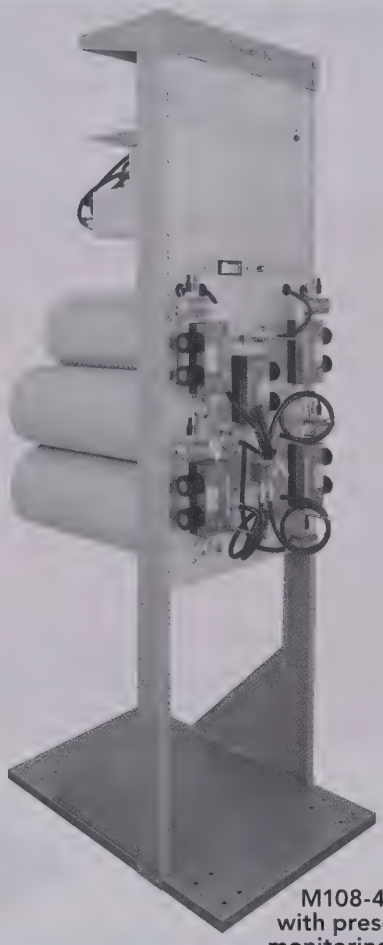
The M108-450-TRM3Q series uses up to ten 8-inch, high "Q" ¾-wave low-loss cavities mounted on a standard 19" x 72" rack. These combiners are available in a vertical or horizontal configuration as required.

Up to 8 cavities can be mounted vertically in two groups, or up to 10 cavities can be mounted horizontally on two 5-channel panels. The vertical configuration is useful for installation in limited space or direct wall mounting. Each cavity also contains internal support for the tuner assembly specifically to enable horizontal mounting.

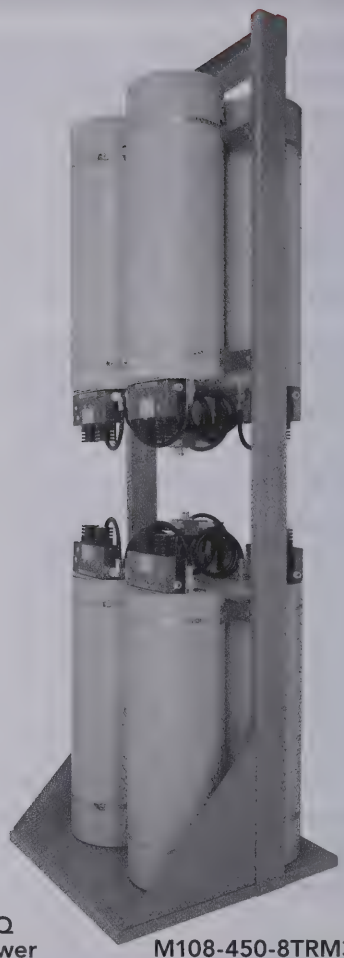
Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around the Telewave compact preselector series, or full-size cavities as needed. Depending on the application, the TPCP-4544 or TPCP-4546 preselector may be mounted in the upper portion of a 72" or 84" rack, and a 1RU receiver panel with 8 or 16 channels.

With new narrowband channel assignments, proper filtering is even more critical. The M108-450-TRM3Q series allows operators of high-density UHF systems to take advantage of new technology, and enhance the performance of existing systems.



M108-450-5TRM3Q with preselector, power monitoring, and RX panel



M108-450-8TRM3Q vertical mounting

SPECIFICATIONS	
Frequency ranges	400-512 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	175 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.6 dB - 5 ch. at 200 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 3/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	24.5 x 19 x 26 (62 x 48.3 x 66)
Weight lb. (kg)	150 (68.1) 5 ch.

All specifications subject to change without notice

TWDS-1037 Rev. 10/12

M101-450-8TRM-193Q

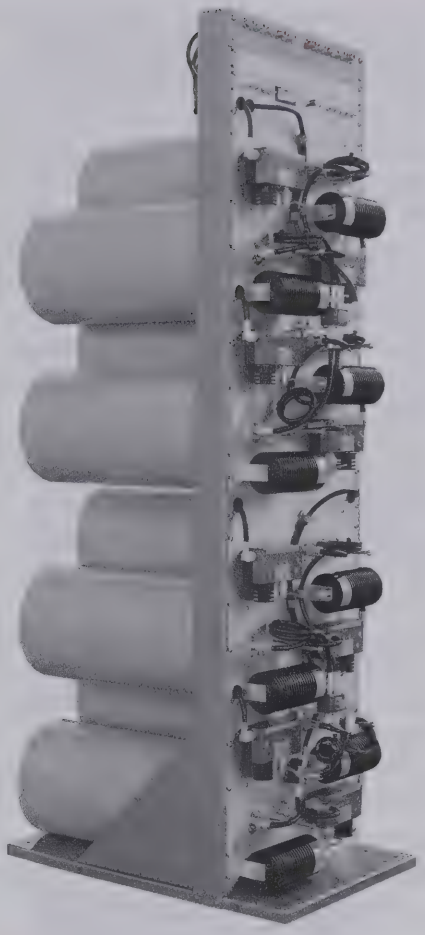
LOW LOSS UHF COMBINER FOR CLOSE SPACING

The M101-450-8TRM-193Q is a high power, high capacity UHF combining system. The system combines up to eight transmitters using 10-inch, high "Q", ¾-wave low-loss cavities mounted on a standard 19" x 72" rack. This design provides as much as 75 dB isolation for each transmitter, with spacing as close as 175 KHz. Each channel has a separate dual isolator, and all tuning is accessible from the front panel.

Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C metering panel uses only 1.75" of vertical rack space.

The optional receiver system is built around Telewave UHF preselectors. Depending on the application, the TPCP-4544, 4546, or 4548 preselector may be integrated directly into the upper portion of the M101-450 84" rack. A 1RU receiver panel with 8 or 16 channels also mounts straight into the rack, preserving valuable site floor space.

With new narrowband channel assignments, proper filtering is even more critical. The M101-450-TRM193Q series allows operators of high-density UHF systems to take advantage of new technology, and enhance the performance of existing systems.



OPTIONAL 100 WATT LOADS SHOWN

SPECIFICATIONS	
Frequency range	400-512 MHz
Channels	1-8 channels into 1 or 2 antennas
Channel separation (min)	175 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	3.25 dB - 5 ch. at 250 KHz spacing
	3.75 dB - 5 ch. at 200 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	10" diameter / 3/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Rack dimensions (HWD) in. (cm)	84 x 20 x 26 (214 x 51 x 66)
Weight lb. (kg)	250 (113.5)

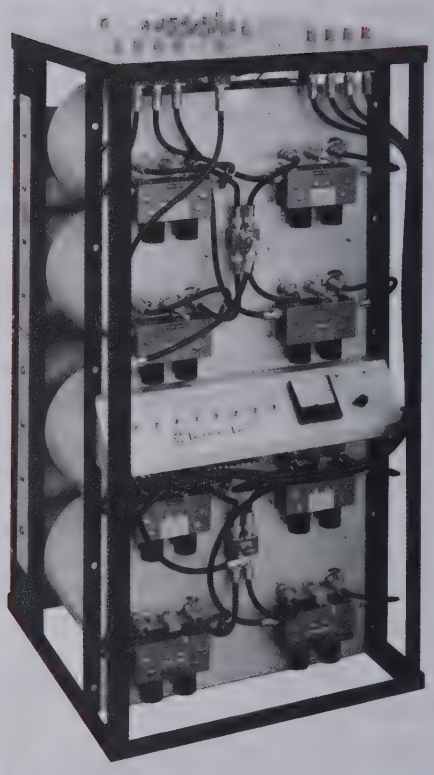
M101-450-8TRM
LOW LOSS UHF COMBINER

The Telewave M101-450 Low Loss UHF Combiner is a unique, fully self-contained transmitter and receiver combining system. The custom welded 24" steel frame provides a rugged enclosure for all system components. This integrated design allows channels to be added, retuned, or removed in the field at any time, without disrupting other active channels. The 24" x 48" rack handles up to 8 channels and 1 or 2 antennas.

With new narrowband channel assignments, proper filtering is even more critical. 10-inch High-"Q" cavities with dual isolators provide 80 dB isolation between channels, and the optional receiver panel drives multiple receivers from a single antenna. The PM8C2S wattmeter panel allows forward or reverse power monitoring for each channel, or total power to each antenna. The M101-450 series allows system operators to take advantage of new technology, and enhance the performance of existing systems.

FEATURES

- ALL TUNING FROM FRONT
- 8 TRANSMITTERS INTO ONE ANTENNA
- INTEGRATED RCVR PANEL
- SELF-CONTAINED, BUILDING BLOCK CONCEPT
- LESS THAN 3 dB INSERTION LOSS WITH PROPER FREQUENCY SELECTION
- ALL CONNECTIONS AT TOP OF RACK
- 80 dB TX TO TX PROTECTION
- 130 dB RX INTERMOD PROTECTION WITH RX PNL.
- RF POWER MONITORING FOR ALL CHANNELS AND ANTENNA
- REMOTE TX KEYING
- FIELD TUNABLE



M101-450-8TRM-8R
(with optional preselector and receiver panel)

SPECIFICATIONS	
Frequency range	400-512 MHz
Channels	1-8 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.8 dB at 275 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	10" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	24" rack mount / N Female
Dimensions (HWD) in. (cm)	48 x 24 x 24 (122 x 61 x 61)
Weight lb. (kg)	150 (68.1)

All specifications subject to change without notice

M108-760-10TRM

LOW LOSS 700-800 MHz COMBINER

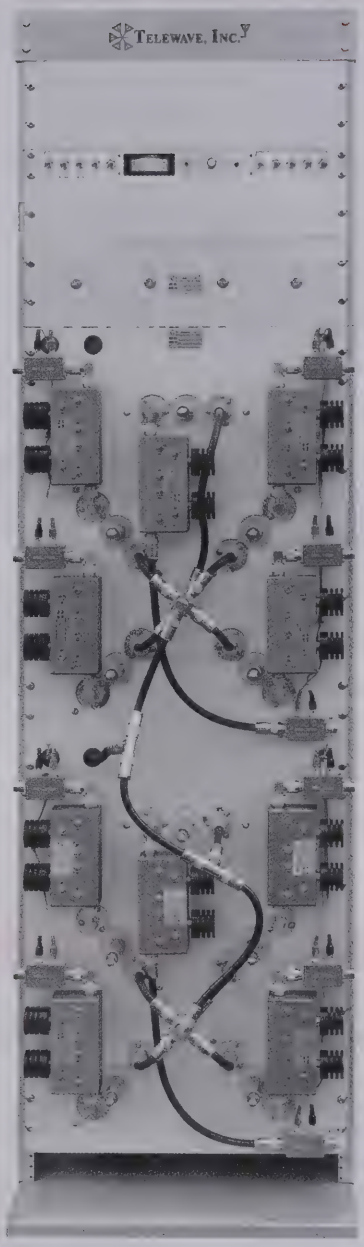
The Telewave M108-760-TRM transmitter combiner covers 746-806 and 800-869 MHz. This combiner features 8-inch, ¾-wave cavities for close channel spacing, and allows 700 and 800 MHz channels to be provisioned in the same rack.

Each combiner covers a single band, and is a modular unit on a 24.5-inch panel. Each 19-inch rack combines up 10 channels into a common antenna, with optional duplexer, preselector, and receiver distribution. Individual channels are field-replaceable within the applicable band without causing downtime to other channels.

Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around the Telewave compact preselector series, or full-size cavities as needed. Depending on the application, the TPCP-7644 preselector may be mounted in the upper portion of a 72" or 84" rack, and a 1RU receiver panel with 8 or 16 channels.

Narrowband 700 MHz spectrum provides Public Safety system operators with new channels for capacity expansion. The M108-760-TRM series allows operators to flexibly deploy spectrum resources in 700 and 800 MHz bands, at new or existing sites.



SPECIFICATIONS	
Frequency ranges	746-806, 800-869 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	4.25 dB - 5 ch. at 250 KHz spacing
	4.8 dB - 10 ch. at 250 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 3/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	24.5 x 19 x 16 (62 x 48.3 x 40.6)
Weight lb. (kg)	150 (68.1)

M106-860-5TP/10TP

COMPACT EXPANDABLE TRUNKING COMBINER PANELS

The Telewave M106-860 Compact Trunking Combiner is an industry leader for excellence in low-loss combiner technology.

The completely passive combining technique with front panel tuning access simplifies installation and maintenance, and allows for the addition of new channels without any disruption of service.

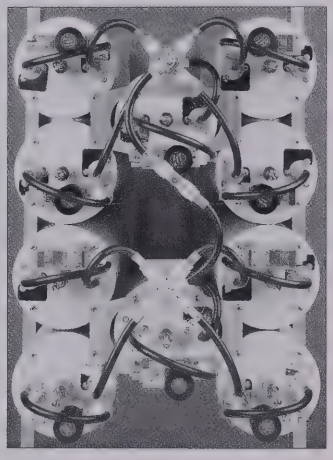
Each combiner panel is field expandable up to five channels. Additional pre-tuned combiner panels can be added at any time. Valuable site space is conserved when using efficient Telewave combiners.

The modular building-block construction means no specialized test equipment is required.

The advanced mechanical design of Telewave high "Q" cavities assures maximum long-term system performance.

Heavy duty 19" racks, duplexers, and receiver multicoupler systems are available as upgrades.

CLOSE-UP OF REAR PANEL (10 CH.)



(Rack not included)

SPECIFICATIONS	
Frequency range	851-869 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	500 KHz
Input power (max)	100 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.0 dB - 5 ch. at 1 MHz spacing
	3.2 dB - 10 ch. at 500 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	65 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	6" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	12.25 x 19 x 17 (31 x 48.3 x 43.2)
Weight lb. (kg)	75 (34) 5 ch.

All specifications subject to change without notice

TWDS-1003 Rev. 10/12

M107-860-5TRM-HP, 10TRM-HP

COMPACT HIGH POWER TRUNKING COMBINER

The Telewave M107-860-5TRM-HP Low Loss High Power Combiner is designed for trunking applications up to 175 watts per channel, with up to 10 channels per rack.

The combiner uses 7-inch, ¾ wave cavities, and channel expansion or maintenance can be performed without disruption of the system. RF power metering is switchable for forward and reverse directions for each transmitter and antenna. Convenient remote transmitter keying is included on the RF wattmeter panel.

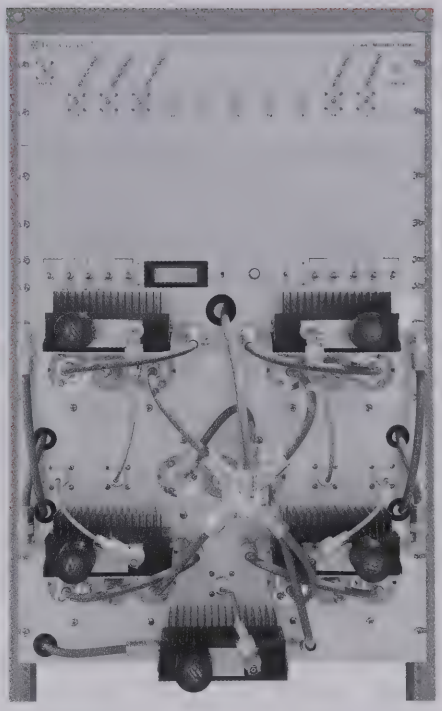
All high power trunking combiners are shipped in a 19" x 72" Rack, with power monitoring, wattmeter panel with remote keying, 175 watt isolator, and -50 dB sampler on 2nd stage isolator load port (75 watt load). Input connectors are N Female and output is 7-16 DIN-F. Standard cabling is high-temp RG-393.

FEATURES

- FIELD TUNABLE
- 10 TRANSMITTERS INTO ONE ANTENNA
- POWER MONITORING FOR ALL CHANNELS AND ANTENNA
- -50 dB RF OUTPUT POWER SAMPLER - EACH CHANNEL

OPTIONS

- RECEIVER PANEL - 1RU
- 500 WATT DUPLEXER - 15 MHz PASSBAND w/ 7-16 DIN
- RG-393 PHASING HARNESS WITH 7-16 DIN CONNECTORS FOR (2) 5-CHANNEL PANELS
- HIGH POWER 5-WAY 7-16 DIN JUNCTION



SPECIFICATIONS	
Frequency range	851-869 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (max)	175 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.2 dB - 5 ch. at 1 MHz spacing
	4.25 dB - 5 ch. at 250 KHz spacing
	3.2 dB - 10 ch. at 500 KHz spacing
TX-to-TX isolation (typ.)	85 dB
Antenna to TX isolation (typ.)	80 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	7" diameter / 3/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female, 7-16 DIN
Panel dimensions (HWD) in. (cm)	17.5 x 19 x 17 (44.5 x 48 x 43)
Weight lb. (kg)	150 (68.1) 5 ch.

M101-860-10TRM

LOW LOSS 800 MHz COMBINER

The Telewave M101-860 Trunking Combiner is an industry leader in low-loss combiner technology. Ease of installation and maintenance is accomplished by front panel tuning.

These trunking combiners are complete packages, including 19" x 72" rack or heavy duty steel cabinet with front and rear locking doors, receiver distribution system, preselector, and power monitoring system.

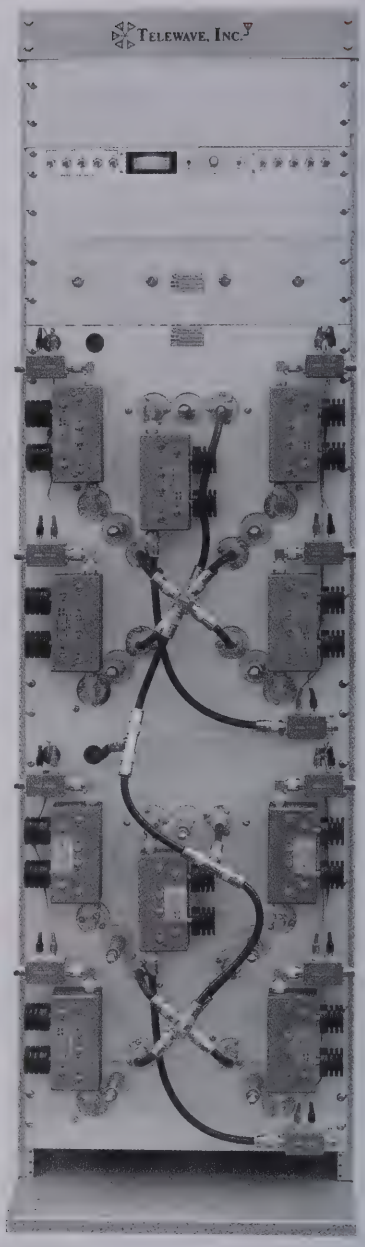
The completely passive combining technique allows for maintenance and addition of channels without disruption of the system.

Valuable site space is conserved when using efficient Telewave designed combiners, and RF power metering is a standard feature. All forward and reverse power measurements are switchable for each transmitter and antenna.

Convenient remote transmitter keying is included on the RF wattmeter panel.

All rack-mount five channel combiners are field expandable to 10 channels by the addition of pre-tuned combiner panels. The modular building-block construction means no specialized test equipment is required.

The advanced mechanical design of the Telewave 8-inch high "Q" cavities assures maximum long-term system performance. All cables are easily accessible from the front panel.



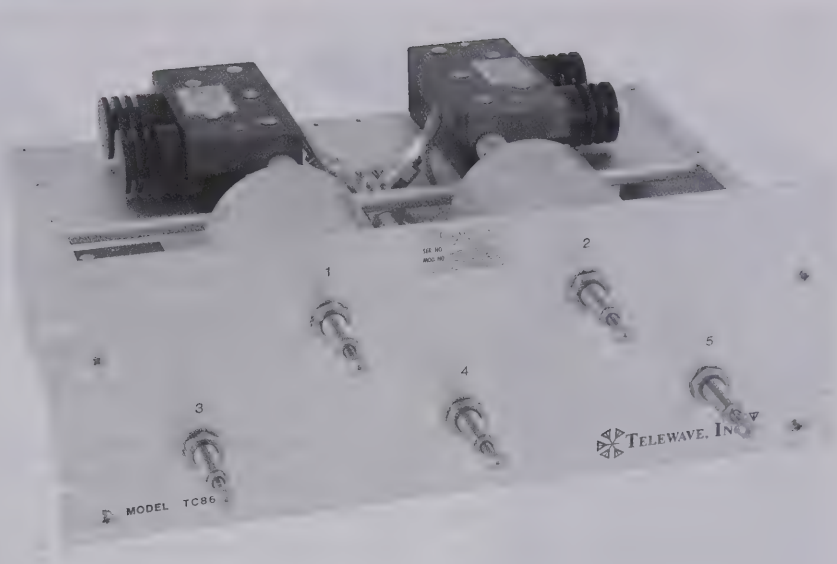
SPECIFICATIONS	
Frequency range	806-869 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	500 KHz (250 KHz with 3Q cavities)
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.0 dB - 5 ch. at 1 MHz spacing
	3.2 dB - 10 ch. at 500 KHz spacing
TX-to-TX isolation (typ.)	85 dB
Antenna to TX isolation (typ.)	80 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 1/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	24.5 x 19 x 16 (62 x 48.3 x 40.6)
Weight lb. (kg)	75 (34) 5 ch.

All specifications subject to change without notice

TC860

CERAMIC ENHANCED TRUNKING COMBINER

The Telewave Ceramic Enhanced 860 MHz Trunking Combiner brings ceramic technology to trunking system operators. The TC860 combiner requires only 7 inches of rack space, and the 4" ceramic cavities provide the same performance as conventional, eight-inch ¾-wavelength cavities. The Telewave Ceramic Enhanced combiner is the best choice when site space is at a premium.



Ceramic Enhanced Resonators allow combining of channels as close as 250 KHz with reasonable insertion loss. Fully temperature compensated components ensure frequency stability throughout the entire temperature range. The unique design also allows the cavity to be tuned under the full 80 watts of input power.

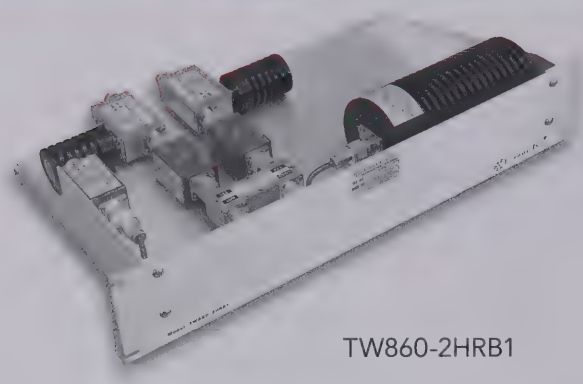
To fully complement this compact combiner, the optional PM10C2S-1C wattmeter panel requires only 1 rack unit of panel space. The wattmeter panel provides convenient transmitter keying and continuous monitoring of combiner performance. If per-channel monitoring is required, additional power monitors are typically mounted on a separate 2RU panel.

The TC860 combiner is field expandable to 10 channels with pretuned expansion kits. This building block concept allows the installation of new channels without the need for specialized test equipment.

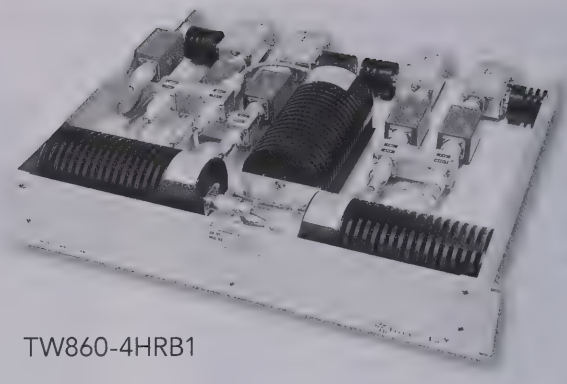
SPECIFICATIONS	
Frequency range	851-869 MHz
Channels	1-5 channels into 1 antenna
Channel separation (min)	250 KHz
Input power (max)	80 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	2.2 dB - 5 ch. at 1 MHz spacing
	2.8 dB - 5 ch. at 500 KHz spacing
	3.2 dB - 5 ch. at 250 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	70 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	4" diameter ceramic / 1/4 wave
Operating temperature	-0°C to +50°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	7 x 19 x 13 (17.8 x 48.3 x 33)
Weight lb. (kg)	36 (16.3) 5 ch.

TW860-2HRB1, TW860-4HRB1

COMPACT HYBRID COMBINERS



TW860-2HRB1



TW860-4HRB1

Telewave Compact Hybrid Combiners allow transmitter combining with close frequency spacing that is not practical for cavity-ferrite combiners. Combining adjacent channels is possible, even two transmitters on the same frequency. The TW860-2HRB1 and 4HRB1 will handle 2 or 4 channels respectively, with reasonable insertion loss.

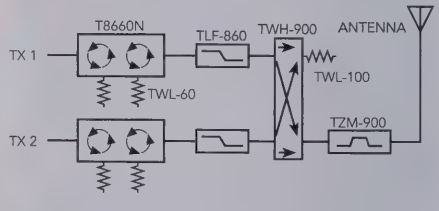
These compact combiners provide high performance in a very small space. Both combiners occupy only two rack units each (3.5") of vertical space on a 19" rack. Each combiner is a broadband device, and is pretuned for 800 MHz SMR/ ESMR, Trunking, or NPSPAC.

No additional tuning is required during installation. A harmonic filter on each channel removes any spurious products.

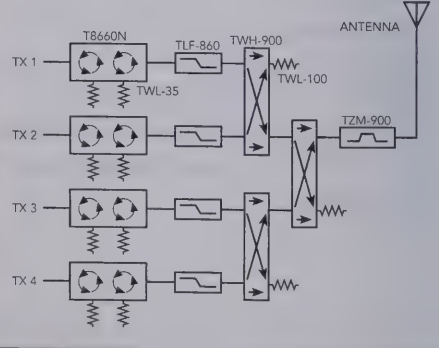
The TW860-2HRB1 and -4HRB1 operate as stand-alone devices, and can be integrated into any standard Telewave cavity/ferrite system to provide maximum flexibility in frequency assignment. Contact our System Engineering Department for custom integration, and high power applications.

SPECIFICATIONS		
Frequency range		851-869 MHz
Channels		2 or 4
Bandwidth		10-30 MHz
Input power (max)		100 watts per channel
Impedance / Input VSWR (max)		50 ohms / 1.3:1
Insertion loss: 2 ch. / 4 ch.		3.8 dB / 7.0 dB
TX to TX isolation		90 dB
Antenna to TX isolation		65 dB
2nd Harmonic attn.		65 dB
Temperature range		-30° to +60°C
Mounting / Connectors		19" rack mount / N Female
Dimensions (HWD) in. (cm)	2 CH 4 CH	3.5 x 19 x 11.25 (8.9 x 48.3 x 28.6) 3.5 x 19 x 16.75 (8.9 x 48.3 x 42.5)
Weight Net / Ship lb (kg)	2 CH 4 CH	15 (6.8) / 30 (13.6) 20 (9.1) / 40 (18.2)
Enclosure		Alodined Aluminum

BLOCK DIAGRAM
TW860-2HRB1 TWO CHANNEL HYBRID



BLOCK DIAGRAM
TW860-4HRB1 FOUR CHANNEL HYBRID



All specifications subject to change without notice

TWDS-1015 Rev. 10/12

M108-900-10TRM3Q

LOW LOSS 900 MHz COMBINER

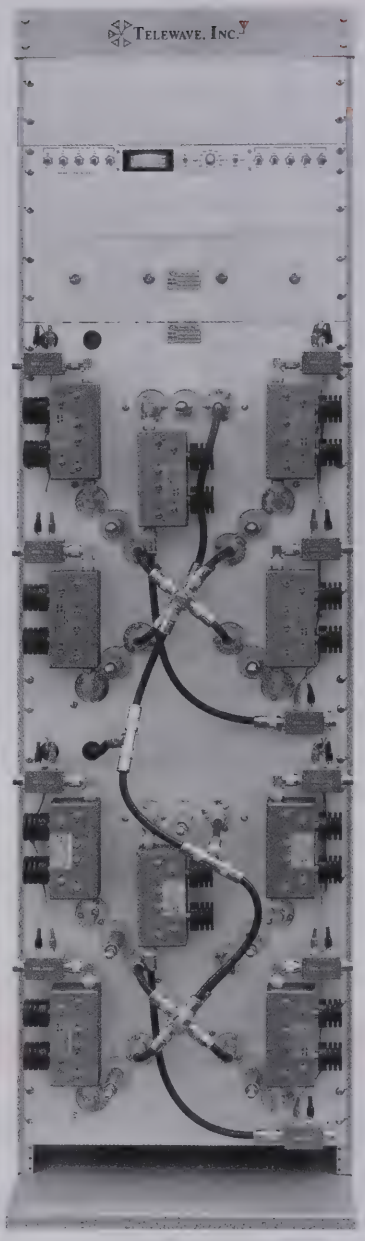
The Telewave M108-900-TRM transmitter combiner covers 896-941 MHz. This combiner features 8-inch, ¾-wave cavities for close channel spacing.

Each combiner covers the full band, and is a modular unit on a 24.5-inch panel. Each 19-inch rack combines up 10 channels into a common antenna, with optional duplexer, preselector, and receiver distribution. Individual channels are field-retunable without causing downtime to other channels.

Optional power monitoring for each channel is available, as well as remote keying for each transmitter. The PM10C2S-1C wattmeter panel uses only 1.75" of rack space.

An optional receiver system can be built around the Telewave compact preselector series, or full-size cavities as needed. Depending on the application, the TPCP-8644 preselector may be mounted in the upper portion of a 72" or 84" rack, and a 1RU receiver panel with 8 or 16 channels.

The M108-900-TRM3Q series provides a new option for 900 MHz system operators to deploy systems with standard spacing and normal insertion loss.



SPECIFICATIONS	
Frequency range	896-941 MHz
Channels	1-10 channels into 1 or 2 antennas
Channel separation (min)	250 KHz
Input power (max)	150 watts per channel
Impedance / Input VSWR (typ.)	50 ohms / 1.25:1
Insertion loss per ch. (typ.)	4.25 dB - 5 ch. at 250 KHz spacing
	4.8 dB - 10 ch. at 250 KHz spacing
TX-to-TX isolation (typ.)	80 dB
Antenna to TX isolation (typ.)	75 dB
2nd harmonic suppression (typ.)	90 dB
Cavity size	8" diameter / 3/4 wave
Operating temperature	-30°C to +60°C
Mounting / Connectors	19" rack mount / N Female
Panel dimensions (HWD) in. (cm)	24.5 x 19 x 26 (62 x 48.3 x 66)
Weight lb. (kg)	150 (68.1) 5 ch.

M101-900-10TRMH

HIGH CAPACITY 900 MHz HYBRID COMBINER

The Telewave 900 MHz Hybrid Trunking Combiner is the industry leader for excellence in hybrid combiner technology. This design allows any transmitter frequency spacing, even transmitters on the same frequency for hot standby.

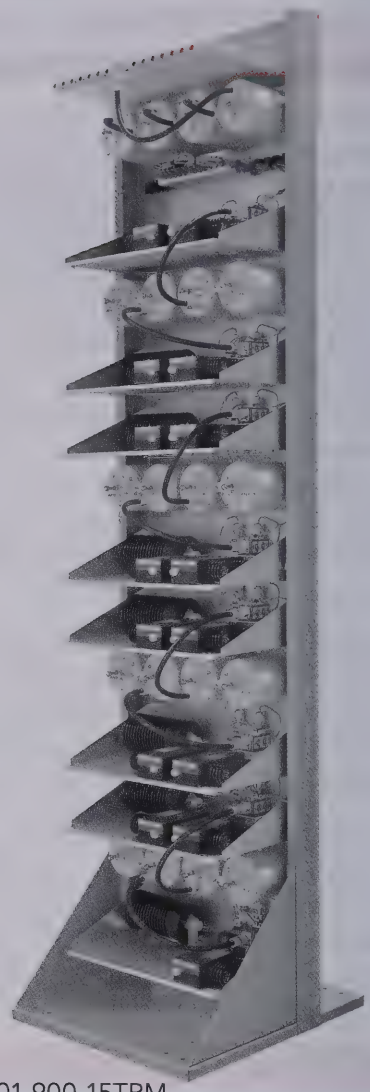
The passive combining design reduces maintenance requirements, and allows simple reconfiguration of antennas to meet system coverage requirements.

The rack mount ten-channel combiners are field expandable to twenty channels. Expansions are accomplished by the addition of the pre-tuned duplexer cavity panels. Modular building block construction means no specialized test equipment is required. All components are easily accessible from the back of the rack.

The M101-900 combiner systems are priced as a complete transmitter combining package, with a 19" steel rack, receiver distribution system with preselector, sideband filters as needed, and power monitoring.

RF power metering is a standard feature. All forward and reverse power measurements are switchable for each transmitter. Up to five antennas can be monitored for VSWR. Convenient remote transmitter keying is included on the wattmeter panel.

The advanced design of the Telewave hybrid combiner assures maximum long-term system performance. Special high power combiners up to 250 watts are available upon request.



M101-900-15TRM

TRANSMITTER COMBINER	
Frequency range	896-941 MHz
Channel separation (min)	12.5 KHz
Input power (max)	150 watts per channel
Temperature	-30°C to +60°C
TX to TX isolation (typ.)	100 dB
Antenna to TX isolation (typ.)	80 dB
Insertion loss (typ) 5 Antenna System (4 TX and 1 RX)	
3.1 dB (2 channels to each TX or 2 channels duplexed to RX ant.)	
3 Antenna System (2 TX and 1 RX Ant)	
6.3 dB (4 channels to each TX) 3.1 dB (2 channels duplexed to RX ant.)	
2 Antenna System (1 TX and 1 RX)	
9.3 dB (8 channels to TX ant.)	
Note: Add 0.4 dB for each isolator, duplexer or sideband filter.	

RECEIVER SYSTEM	
Frequency range	896-941 MHz
Port isolation (typ.)	25 dB
Power input	120 or 240 VAC +15 VDC
3rd Order int. (typ.)	+36 dB
Noise figure (typ.)	2.5 dB
System Gain (typ.)	+4 to +6 dB
Temperature	-40°C – +60°C
Connectors	N Female
Channels	8-32
Mounting	19" Rack mount
Test port	-20 dB

All specifications subject to change without notice

TWDS-1018 Rev. 7/09

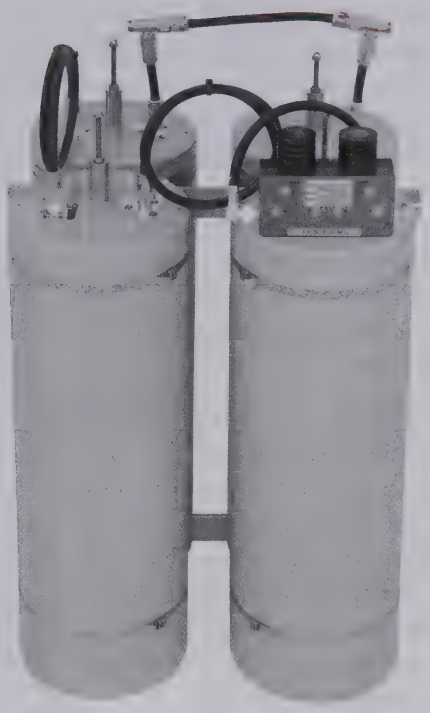
BANDPASS/NOTCH COMBINERS

1 NOTCH, 1-3 PASS CAVITIES

Telewave Pass-Notch Combiners offer excellent performance, and several unique characteristics. Additional frequencies can be added without retuning the entire system. Installation is simplified and off-air time is minimized. Splitting of transmitter and receiver systems is not necessary.

Each combiner consists of a 8" diameter notch cavity and one to three 8" pass cavities. A cavity-mounted dual isolator is recommended to suppress intermodulation and third harmonics. The notch cavity performs the function of a steering device to maintain proper energy flow in the combining network. The pass cavities form a highly selective filter which effectively isolates each node. The nodes are arranged in ascending order, with the highest frequency nearest the antenna.

Contact Telewave for complete engineering assistance with your system.



M101-150-1T-3PN
WITH OPTIONAL DUAL
ISOLATOR

SPECIFICATIONS			
Frequency ranges	M101-70-xx M101-150-xx M101-450-xx	66-88 MHz 136-174 MHz 400-512 MHz	
Insertion loss	0.5 - 3.0 dB (adjustable)		
Impedance	50 ohms		
VSWR (max)	1.5:1		
Input power (max) (without isolators)	350 watts at 1.7 dB insertion loss 150 watts at 3.0 dB insertion loss		
Cavity size	8" diameter		
Temperature	-30°C to +60°C		
Size (HWD) in.	M101-70-xx M101-150-xx M101-450-xx	53 x 19 x 8.5 / 17 (2PN, 3PN) 22 x 19 x 8.5 / 17 (2PN, 3PN) 16 x 19 x 8.5 / 17 (2PN, 3PN)	
Weight lb.	M101-70-1T	-1PN -2PN -3PN	24 35 46
	M101-150-1T	-1PN -2PN -3PN	17 25 33
	M101-450-1T	-1PN -2PN -3PN	12 17 20

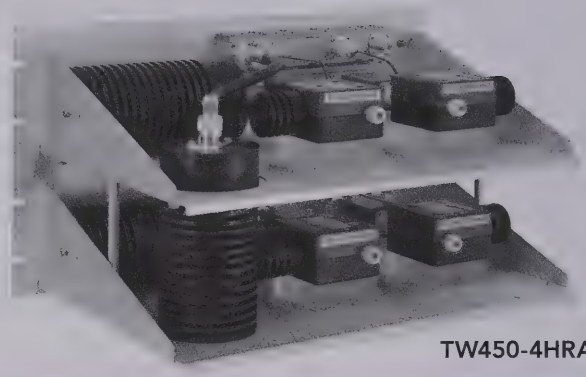
HYBRID COMBINERS

2 OR 4 CHANNELS

Telewave Hybrid Combiners allow transmitter combining with close frequency spacing that is not practical for cavity-ferrite combiners. Combining adjacent channels is possible, even two transmitters on the same frequency. These combiners are configured in sets of two or four channels, and maintain reasonable insertion losses.

Telewave hybrid combiners use a minimal amount of 19" rack space. Two channel units require 5.25" rack space, and 10.5" for each four channel combiner. There is no tuning required during installation. Each channel is equipped with a harmonic filter to remove any spurious products.

The basic hybrid design can also be integrated into any standard Telewave cavity-ferrite combiner system to provide outstanding flexibility in frequency selection. High power is available in all frequency bands. Contact Telewave for custom integration and applications above 150 watts.



TW450-4HRA1

MODEL NUMBER	FREQUENCY BAND (MHz)	ISOLATION (dB) TX-TX	ISOLATION (dB) ANT-TX	INSERTION LOSS (dB)
TWO CHANNEL WITH SINGLE ISOLATORS - PANEL SIZE 5.25" H x 19" W				
TW150-2HRA1	118-174	70	33	3.8
TW220-2HRA1	216-250	70	33	3.8
TW450-2HRA1	406-512	70	33	3.7
TW760-2HRA1	763-869	70	33	3.6
TW900-2HRA1	806-960	70	33	3.6
TWO CHANNEL WITH DUAL ISOLATORS - PANEL SIZE 5.25" H x 19" W				
TW150-2HRB1	118-174	100	65	4.0
TW220-2HRB1	216-250	100	65	4.0
TW450-2HRB1	406-512	100	65	3.9
TW760-2HRB1	763-869	100	65	3.8
TW900-2HRB1	806-960	100	65	3.8
FOUR CHANNEL WITH SINGLE ISOLATORS - PANEL SIZE 10.5" H x 19" W				
TW150-4HRA1	118-174	70	33	6.8
TW220-4HRA1	216-250	70	33	6.8
TW450-4HRA1	406-512	70	33	6.8
TW760-4HRA1	763-869	70	33	6.7
TW900-4HRA1	806-960	70	33	6.7
FOUR CHANNEL WITH DUAL ISOLATORS - PANEL SIZE 10.5" H x 19" W				
TW150-4HRB1	118-174	100	65	7.2
TW220-4HRB1	216-250	100	65	7.2
TW450-4HRB1	406-512	100	65	7.1
TW760-4HRB1	763-869	100	65	7.0
TW900-4HRB1	806-960	100	65	7.0

SPECIFICATIONS	
Input power (std. / opt.)	100 / 150 watts per channel
Harmonic attenuation (min)	65 dB
Temperature range	-30°C to +60°C
Connector	N Female
Weight	20-50 lb. depending on model

All specifications subject to change without notice

TWDS-1022 Rev. 10/12

2 RECEIVER MULTICOUPLERS

2 RECEIVER MULTICOUPLERS

Receiver Distribution Panels

Receiver Distribution Panels feed multiple receivers from a single antenna, with isolation between each output port. An integral preamplifier compensates for signal losses in the splitters and long cable runs.

Compact Distribution Panels

Compact Receiver Panels provide 8 or 16 outputs in 1RU (1.75"), and 24 or 32 channels in 2RU (3.5"). This allows RX distribution capability in the same rack as a multi-channel combiner and preselector.

Receiver Power Splitters

Power splitters divide a low-level signal and distribute it to multiple outputs with isolation between each port. Antenna ports are tuned with a matching network to insure balanced input.

Preamplifiers - Bipolar / PHEMT

Preamplifiers amplify low-level signals and can improve the noise figure of a receiver system. Bipolar preamps are very rugged and resistant to input overload. PHEMT devices provide a low noise figure and redundant circuitry.

Tower Top Preselectors

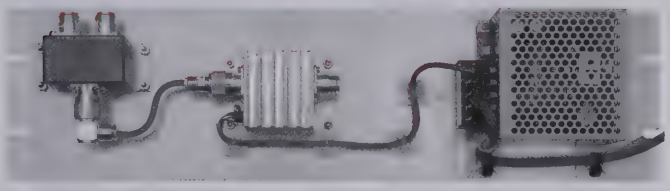
A tower-top preselector improves the noise figure of a receiver system by filtering and amplifying the received signal at the antenna, before cabling losses. Coupling devices transfer DC power up the tower via the feedline.

Base Station Preselectors

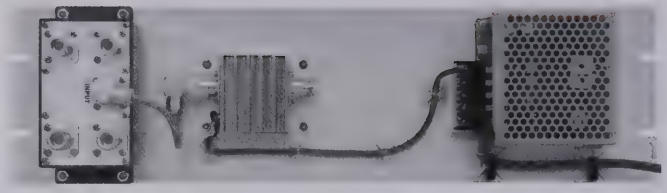
A preselector protects a receiver or group of receivers by filtering out all signals that are not within the operating frequency band. Multi-window preselectors cover more than one segment within a band. Square cavities allow very compact designs for efficient rack layout.

TWR2, TWR4 SERIES

RECEIVER DISTRIBUTION PANELS



TWR2 SERIES



TWR4 SERIES

Telewave TWR2 and TWR4 Receiver Distribution Panels provide 2 or 4 isolated 50 ohm receiver outputs from one input, in a compact package. The antenna port is tuned with a matching network to insure a balanced input. A high-gain TLA-series preamp and multi-voltage AC power supply are included on a single 5.25" panel. The preamp can also be powered directly from a DC source.

Telewave receiver panels use high-quality splitters which provide multiple balanced outputs from one input, with 20-30 dB of isolation between ports.

MODEL	FREQUENCY	PORTS	BANDWIDTH	GAIN
TWR2-150	132-174 MHz	2	26 MHz	0-18 dB
TWR2-250	216-250 MHz	2	34 MHz	0-18 dB
TWR2-350	300-400 MHz	2	30 MHz	0-18 dB
TWR2-450	400-512 MHz	2	40 MHz	0-18 dB
TWR2-760	763-824 MHz	2	30 MHz	0-18 dB
TWR2-860	806-960 MHz	2	30 MHz	0-18 dB
TWR4-150	148-174 MHz	4	26 MHz	0-18 dB
TWR4-250	216-250 MHz	4	34 MHz	0-18 dB
TWR4-350	300-400 MHz	4	40 MHz	0-18 dB
TWR4-450	400-512 MHz	4	40 MHz	0-18 dB
TWR4-760	763-824 MHz	4	40 MHz	0-15 dB
TWR4-860	806-960 MHz	4	40 MHz	0-15 dB

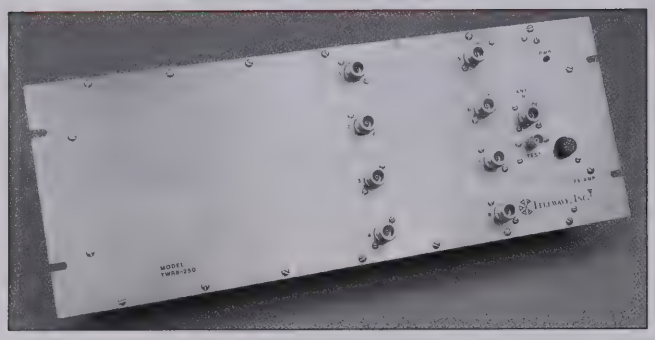
COMMON SPECIFICATIONS		
Impedance / VSWR (typ)		50 ohms / 1.3:1
Isolation RX-RX (min / typ.)		132-174 MHz: 20 dB / 25 dB
		216-960 MHz: 25 dB / 30 dB
Noise figure (typ)		2.5 dB
Third order intercept		+36 dBm
Intermodulation (typ)		-130 dB for -30 dBm input
Temperature range		-40°C to +60°C
Power requirements	AC	100-240 VAC, 50-60 Hz / 0.4 A
	DC	+12 to +24 VDC / 200 mA (typ.)
Connectors In / Out		N Female (BNC female opt.)
Dimensions (HWD) in. (cm)		5.25 x 19 x 3 (13.3 x 48.3 x 7.6)
Weight lb. (kg)		4 (1.8)

NOTES

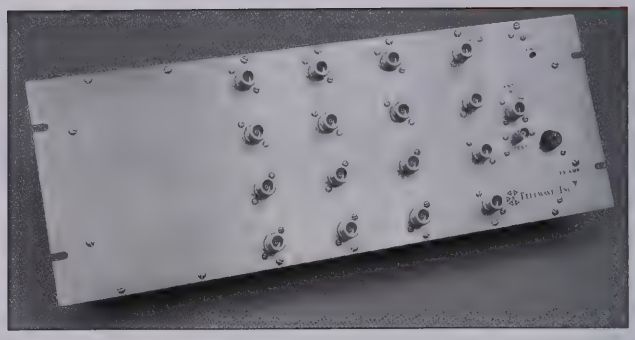
1. All unused ports must be terminated with 50 ohms. TWL-01 terminating resistor is available for this purpose.
2. Panel gain is measured from the input port to any output port. Gain is adjusted at the factory according to individual system requirements.
3. Tuning range and bandwidth vary depending on frequency band and system components.
4. Exact frequencies must be specified with order.

TWR8, TWR16, TWR24 SERIES

RECEIVER DISTRIBUTION PANELS



TWR8 SERIES



TWR16 SERIES

Telewave Receiver Distribution Panels are used to feed multiple receivers from a common antenna, reducing cost and tower loading, while providing consistent signal quality, output isolation, and higher output levels.

A typical receiver distribution panel includes a power supply, inline low noise preamplifier, and one or two 8-way splitters all on a single 19" panel. The preamplifier provides as much as +18 dB system gain to overcome splitting and cable losses.

Telewave receiver panels are fully shielded, and each panel has sufficient bandwidth to cover an entire commercial or Public Safety band. Standard panels have one input, 8 or 16 outputs, and a -20 dB sample port on a 7" x 19" panel. A 24 channel model is available for 700/800 MHz only. For sites with limited rack space, the Telewave 1R and 2R series of compact panels is also available with 8 or 16 channels in 1 rack unit (1.75" H), or up to 32 channels on a 3.5" panel.

Additional panels may be added at any time to increase the number of available outputs. New panels can be directly coupled to existing panels without additional parts or tuning. Successful multicoupling generally requires some type of filtering between the receiver panel and antenna. Telewave manufactures a wide range of high quality preselector systems for transmitters and receivers.

Telewave receiver panels provide 8 or 16 matched 50 ohm outputs from one input, with typical 25 dB isolation between ports. The antenna port is tuned with a matching network to insure a balanced input. A -20 dB sample port is also provided for connection of external signal analyzers.

Telewave can supply panels for operation on +12 to +24 VDC, and 120 or 220/240 VAC. Other voltage options are available on request. A battery backup on the DC input can provide uninterrupted operation during a site power failure (charging output not supplied). Tuning range and bandwidth varies depending on frequency band and system components. Please contact Telewave to discuss your requirements with a sales engineer to ensure maximum system performance.

All specifications subject to change without notice

TWR8-, 16-, 24- SERIES

MODEL	FREQUENCY	PORTS	BANDWIDTH	GAIN
TWR8-030	30-88 MHz	8	58 MHz	0-18 dB
TWR8-050	50-512 MHz	8	400 MHz	0-18 dB
TWR8-150	132-174 MHz	8	42 MHz	0-18 dB
TWR8-250	216-250 MHz	8	34 MHz	0-18 dB
TWR8-350	300-400 MHz	8	40 MHz	0-18 dB
TWR8-450	400-512 MHz	8	40 MHz	0-18 dB
TWR8-760	763-824 MHz	8	40 MHz	0-12 dB
TWR8-860	806-960 MHz	8	40 MHz	0-12 dB
TWR16-030	30-88 MHz	16	58 MHz	0-15 dB
TWR16-050	50-512 MHz	16	400 MHz	0-15 dB
TWR16-150	132-174 MHz	16	42 MHz	0-15 dB
TWR16-250	216-250 MHz	16	34 MHz	0-15 dB
TWR16-350	300-400 MHz	16	40 MHz	0-15 dB
TWR16-450	400-512 MHz	16	40 MHz	0-15 dB
TWR16-760	763-824 MHz	16	40 MHz	0-8 dB
TWR16-860	806-960 MHz	16	40 MHz	0-8 dB
TWR24-760	763-824 MHz	24	40 MHz	0-6 dB
TWR24-860	806-960 MHz	24	40 MHz	0-6 dB

COMMON SPECIFICATIONS		
Impedance / VSWR (typ)		50 ohms / 1.3:1
Isolation RX-RX (min / typ.)		30-174 MHz: 20 dB / 25 dB
		216-960 MHz: 25 dB / 30 dB
Noise figure (typ)		2.5 dB
Third order intercept		+36 dBm
Intermodulation (typ)		-130 dB for -30 dBm input
Sample port		-20 dB
Temperature range		-40°C to +60°C
Power requirements	AC	120 VAC (std.) 220/240 VAC (opt.)
	DC	+11.5 to +15 VDC (power reverting) +12 to +24 VDC (direct to preamp)
Connectors		Input - N Female Output - N or BNC Female (opt.)
Dimensions (HWD) in. (cm)		7 x 19 x 3 (17.8 x 48.3 x 7.6)
Weight lb. (kg) 8 / 16 / 24 ch		5.5 (2.5) / 6 (2.7) / 6.5 (2.9)

NOTES

1. All unused ports must be terminated with 50 ohms. TWL-01 terminating resistor is available for this purpose.
2. Panel gain is measured from the input port to any output port. Gain is adjusted at the factory according to individual system requirements. Standard gain is 6 dB if not specified.
3. Tuning range and bandwidth vary depending on frequency band and system components.
4. Exact frequencies and system gain must be specified with order.

TWR8, TWR16 -1R SERIES

COMPACT RECEIVER PANELS

FEATURES

- 25 dB TYPICAL PORT TO PORT ISOLATION
- N OR BNC OUTPUT
- 0.7 TO 2.5 dB TYPICAL NOISE FIGURE
- MODULAR DESIGN
- VHF-LOW/HIGH, UHF, 700/800/900 TRUNKING
- NO TUNING REQUIRED
- 1 RACK UNIT (1.75" x 19")
- 24 AND 32 CHANNELS AVAILABLE IN 2 RU

TWR16-450-1R

Telewave Compact Receiver Distribution Panels are used to feed multiple receivers from a common antenna, reducing cost and tower loading, while providing consistent signal quality, output isolation, and higher output levels.

A typical receiver distribution panel includes a power supply, inline low noise preamplifier, and one or two 8-way splitters all on a single 19" tray. The preamplifier provides as much as +18 dB system gain to overcome splitting and cable losses.

Telewave 1R panels provide full performance in only 1RU. The 8 channel unit can be easily field expanded to 16 channels, by adding an additional 8 channel splitter. All receiver panel components are fully shielded, and each panel has sufficient bandwidth to cover an entire commercial or Public Safety band.

New panels can be directly coupled to existing panels without additional parts or tuning. Successful multicoupling generally requires some type of filtering between the receiver panel and antenna. Telewave manufactures a wide range of high quality preselector systems for transmitters and receivers.

Telewave receiver panels use high-quality splitters to provide 8 or 16 matched 50 ohm outputs from one input, with typical 25 dB isolation between ports. The antenna port is tuned with a matching network to insure a balanced input.

These units, with their specially designed power supply, can be powered from an AC or DC source. The internal DC input circuitry will allow the external input DC voltage to vary between +11.5 VDC to +15 VDC, while keeping the DC output voltage constant. This feature allows the preamplifier to perform at its rated gain, 1 dB compression point, and 3rd order intercept point.

This design is especially suited for battery, solar panels, and thermal generator sources. An external DC-DC converter allows operation from DC inputs as low as +9.5 VDC.

The 1R series ships standard with an inline low noise bipolar preamplifier (except TT models). Optional items include PHEMT preamps for lower noise figure, high 3rd order intercept preamps for RF congested sites, redundant preamps for maximum reliability at remote sites, and broadband preamps for multi-band applications.

All specifications subject to change without notice

TWR8, TWR16 -1R SERIES

MODEL	FREQUENCY RANGE	PORTS	BANDWIDTH	OPTIONS
TWR8-030-1R, RA	30-88 MHz	8	58 MHz	1
TWR8-050-1R, RA	50-512 MHz	8	400 MHz	1
TWR8-150-1R, RA, RTT	132-174 MHz	8	42 MHz	1,2
TWR8-250-1R, RA, RTT	216-250 MHz	8	42 MHz	1,2
TWR8-350-1R, RA, RTT	300-400 MHz	8	40 MHz	1,2
TWR8-450-1R, RA, RTT	400-512 MHz	8	40 MHz	1,2
TWR8-760-1R, RA, RTT	763-824 MHz	8	40 MHz	1,2
TWR8-860-1R, RA, RTT	806-960 MHz	8	40 MHz	1,2
TWR16-030-1R, RA	30-88 MHz	16	58 MHz	1
TWR16-050-1R, RA	50-512 MHz	16	400 MHz	1
TWR16-150-1R, RA, RTT	132-174 MHz	16	42 MHz	1,2
TWR16-250-1R, RA, RTT	216-250 MHz	16	42 MHz	1,2
TWR16-350-1R, RA, RTT	300-400 MHz	16	40 MHz	1,2
TWR16-450-1R, RA, RTT	400-512 MHz	16	40 MHz	1,2
TWR16-760-1R, RA, RTT	763-824 MHz	16	40 MHz	1,2
TWR16-860-1R, RA, RTT	806-960 MHz	16	40 MHz	1,2

COMMON SPECIFICATIONS		
Impedance / VSWR (typ)		50 ohms / 1.3:1
Isolation port to port (min / typ.)		30-174 MHz: 20 dB / 25 dB 216-960 MHz: 25 dB / 30 dB
System gain (factory adj.)	8 ch.	30-760 MHz: 0-18 +/-1 dB 760-960 MHz: 0-12 +/-1 dB
	16 ch.	30-760 MHz: 0-15 +/-1 dB 760-960 MHz: 0-8 +/-1 dB
Noise figure (max)		2.5 dB
Third-order intercept (typ)		+36 dBm
Intermodulation (typ)		-130 dB for -30 dBm input
Temperature range		-40°C to +60°C
Power requirements	AC	120 VAC (std.) 220/240 VAC (opt.)
	DC	+11.5 to +15 VDC (regulated output) +12 to +24 VDC (direct to preamp)
Connectors		Input - N Female Output - N or BNC Female (opt.)
Dimensions (HWD) in. (cm)		1.75 x 19 x 11 (4.5 x 48.3 x 27.9)
Weight lb. (kg) 8 ch / 16 ch		6.5 (3.0) / 8.5 (3.9)

OPTIONS:

1. RA: 0-10 dB step attenuator (std. gain 1 to 11 dB)
2. RTT: 1 amp meter movement & DC injector to power Tower Top Preamp.

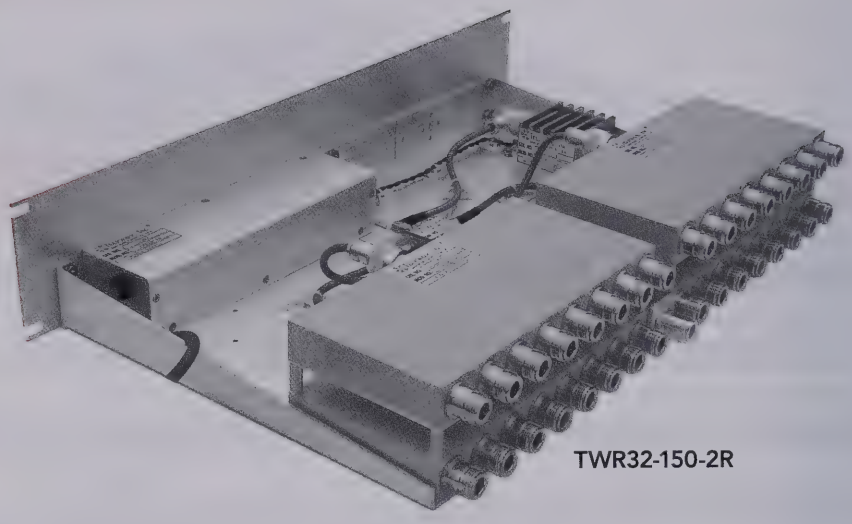
NOTES

1. All unused ports must be terminated with 50 ohms. TWL-01 terminating resistor is available for this purpose.
2. Panel gain is measured from the input port to any output port. Gain is adjusted at the factory according to individual system requirements. Standard gain is 6 dB if not specified.
3. Tuning range and bandwidth vary depending on frequency band and system components.
4. Exact frequencies and system gain must be specified with order.

TWR24/32-2R SERIES
COMPACT RECEIVER PANELS

FEATURES

- 25 dB TYPICAL PORT TO PORT ISOLATION
- N OR BNC CONNECTORS
- 0.7 TO 2.5 dB TYPICAL NOISE FIGURE
- MODULAR DESIGN
- VHF-LOW/HIGH, UHF, 700/800/900 TRUNKING
- NO TUNING REQUIRED
- ONLY 2 RU (3.5" x 19")



TWR32-150-2R

Telewave 2R Compact Receiver Distribution Panels are used at medium to high density sites to feed multiple receivers from a common antenna, reducing cost and tower loading, while providing consistent signal quality, output isolation, and higher output levels.

A typical receiver distribution panel includes a power supply, inline low noise preamplifier, and three or four 8-way splitters all on a single 19" tray. The preamplifier provides as much as +12 dB system gain to overcome splitting and cable losses.

Telewave 2R panels provide full performance in only 2RU. All receiver panel components are fully shielded, and each panel has sufficient bandwidth to cover an entire commercial or Public Safety band.

New panels can be directly coupled to existing panels without additional parts or tuning. Successful multicoupling generally requires some type of filtering between the receiver panel and antenna. Telewave manufactures a wide range of high quality preselector systems for transmitters and receivers.

Telewave 2R Receiver Panels use high-quality splitters to provide 24 or 32 matched 50 ohm outputs from one input, with typical 25 dB isolation between ports. The antenna port is tuned with a matching network to insure a balanced input.

These units, with their specially designed power supply, can be powered from an AC or DC source. The internal DC input circuitry will allow the external input DC voltage to vary between +11.5 VDC to +15 VDC, while keeping the DC output voltage constant. This feature allows the preamplifier to perform at its rated gain, 1 dB compression point, and 3rd order intercept point.

This design is especially suited for battery, solar panels, and thermal generator sources. An external DC-DC converter allows operation from DC inputs as low as +9.5 VDC.

The 2R series ships standard with an inline low noise bipolar preamplifier (except TT models). Optional items include PHEMT preamps for lower noise figure, high 3rd order intercept preamps for RF congested sites, redundant preamps for maximum reliability at remote sites, and broadband preamps for multi-band applications.

All specifications subject to change without notice

TWR24/32-2R SERIES

MODEL	FREQUENCY	PORTS	BANDWIDTH	GAIN
TWR24-030-2R	30-88 MHz	24	58 MHz	0-12 dB
TWR24-050-2R	50-512 MHz	24	400 MHz	0-12 dB
TWR24-150-2R	132-174 MHz	24	42 MHz	0-12 dB
TWR24-250-2R	216-250 MHz	24	34 MHz	0-12 dB
TWR24-350-2R	300-400 MHz	24	40 MHz	0-12 dB
TWR24-450-2R	400-512 MHz	24	40 MHz	0-12 dB
TWR24-760-2R	763-824 MHz	24	40 MHz	0-5 dB
TWR24-860-2R	806-960 MHz	24	40 MHz	0-5 dB
TWR32-030-2R	30-88 MHz	32	58 MHz	0-12 dB
TWR32-050-2R	50-512 MHz	32	400 MHz	0-12 dB
TWR32-150-2R	132-174 MHz	32	42 MHz	0-12 dB
TWR32-250-2R	216-250 MHz	32	34 MHz	0-12 dB
TWR32-350-2R	300-400 MHz	32	40 MHz	0-12 dB
TWR32-450-2R	400-512 MHz	32	40 MHz	0-12 dB
TWR32-760-2R	763-824 MHz	32	40 MHz	0-5 dB
TWR32-860-2R	806-960 MHz	32	40 MHz	0-5 dB

COMMON SPECIFICATIONS		
Impedance / VSWR (typ.)		50 ohms / 1.3:1
Isolation port to port (min / typ.)		30-174 MHz: 20 dB / 25 dB
		216-960 MHz: 25 dB / 30 dB
Noise figure (typ)		2.5 dB
Intermodulation (typ)		-130 dB for -30 dBm input
Third order intercept		+36 dBm
Temperature range		-40°C to +60°C
Power requirements	AC	120 VAC (std.) 220/240 VAC (opt.)
	DC	+11.5 to +15 VDC (regulated output) +12 to +24 VDC (direct to preamp)
Connectors		Input - N Female Output - N or BNC Female (opt.)
Dimensions (HWD) in. (cm)		3.5 x 19 x 11 (8.9 x 48.3 x 27.9)
Weight lb. (kg) 24 / 32 ch.		11 (5.0) / 13 (5.9)

NOTES

1. All unused ports must be terminated with 50 ohms. TWL-01 terminating resistor is available for this purpose.
2. Panel gain is measured from the input port to any output port. Gain is adjusted at the factory according to individual system requirements. Standard gain is 6 dB if not specified.
3. Tuning range and bandwidth vary depending on frequency band and system components.
4. Exact frequencies and system gain must be specified with order.

PS- SERIES
RECEIVER POWER SPLITTERS

Telewave Receiver Power Splitters provide 2 to 8 matched 50 ohm receiver outputs from one input. The antenna port is tuned with a matching network to insure a balanced input.

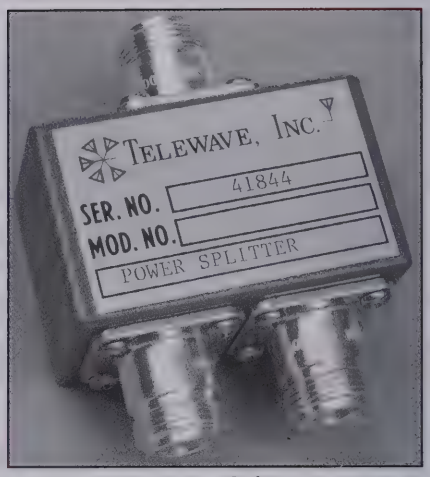
Since the input signal is split evenly between all ports, the available signal at each output port will be 3 to 9 dB below the input. For this reason, a preamp is generally used to compensate for coupler and cable losses.

These rugged, compact splitters are commonly used in RX multicouplers, and are not intended to be used with transmitters. Telewave makes a full line of transmitter power dividers with 500 watt power capability for this purpose.

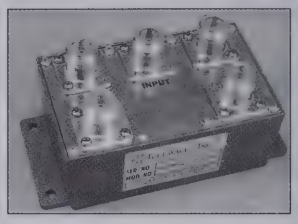
MODEL	PORTS	FREQUENCY	BANDWIDTH	STD. TUNE
PS-302	2	33-50 MHz	8 MHz	38-46 MHz
PS-702	2	72-88 MHz	16 MHz	72-88 MHz
PS-1502	2	132-174 MHz	26 MHz	148-174 MHz
PS-1504	4	148-174 MHz	26 MHz	148-174 MHz
PS-3302	2	320-390 MHz	30 MHz	350-380 MHz
PS-4502	2	400-512 MHz	40 MHz	450-470 MHz
PS-4504	4	400-512 MHz	40 MHz	450-470 MHz
PS-4508	8	400-512 MHz	40 MHz	450-470 MHz
PS-5002	2	10-1000 MHz	1000 MHz	N/A
PS-5004	4	10-1000 MHz	1000 MHz	N/A
PS-5008	8	30-512 MHz	500 MHz	N/A
PS-7602	2	763-824 MHz	30 MHz	793-824 MHz
PS-7604	4	763-824 MHz	40 MHz	793-824 MHz
PS-7608	8	763-824 MHz	40 MHz	793-824 MHz
PS-8602	2	806-960 MHz	30 MHz	806-824 MHz
PS-8604	4	806-960 MHz	40 MHz	806-824 MHz
PS-8608	8	806-960 MHz	40 MHz	806-824 MHz

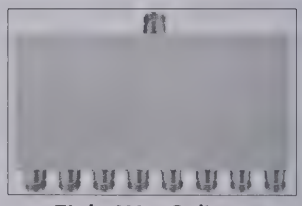
COMMON SPECIFICATIONS		
Impedance / VSWR (typ.)		50 ohms / 1.3:1
Isolation (min / typ.)		20 dB / 25 dB
Connectors		Input - N Female Output - N or BNC Female (opt.)
Dimensions	2-way in. (cm)	1.25 x 2.25 x 1.5 (3.2 x 5.7 x 3.8)
	4-way in. (cm)	1.75 x 4.25 x 2.5 (4.5 x 10.8 x 6.4)
	8-way in. (cm)	8 x 5.25 x 1 (20.3 x 13.3 x 2.5)
	PS-5002 in. (cm)	2.75 x 2 x 0.75 (7 x 5.1 x 1.9)
	PS-5004 in. (cm)	3.5 x 3 x 0.75 (8.9 x 7.6 x 1.9)
Coupling loss	2 / 4 / 8-port	3 / 6 / 9 dB
Insertion loss (typ.)	2 / 4 / 8-port	0.2 / 0.4 / 0.6 dB
Weight lb. (kg)	2 / 4 / 8-port	1 (0.45) / 2 (0.9) / 3 (1.4)

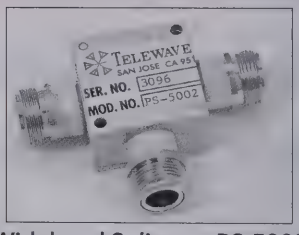
Note: Splitters are normally factory tuned as indicated. Other ranges must be specified with order. Terminate unused ports with 50 ohms.



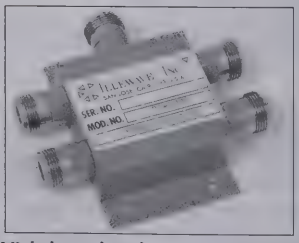
Two-Way Splitter


Four-Way Splitter


Eight-Way Splitter



Wideband Splitter - PS-5002


Wideband Splitter - PS-5004

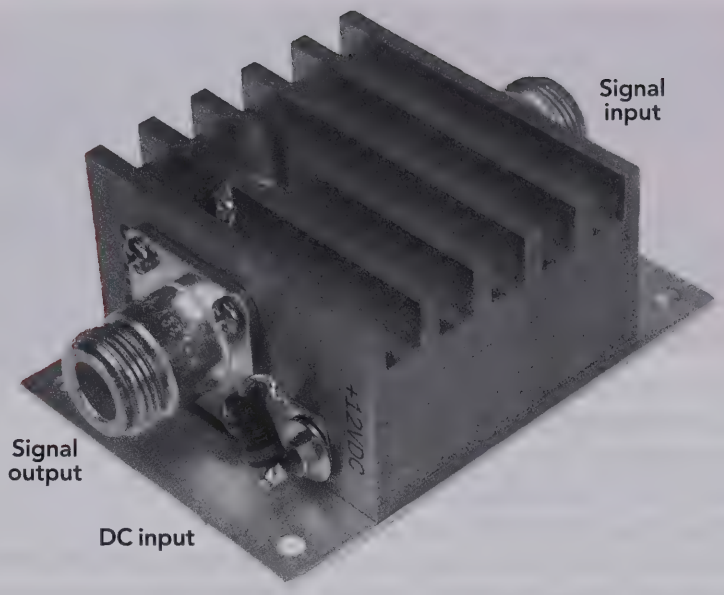
All specifications subject to change without notice

TLA SERIES

LOW NOISE BIPOLAR INLINE PREAMPLIFIERS

FEATURES

- 50 OHM INPUT/OUTPUT
- OVER-VOLTAGE/POLARITY PROTECTION
- VERSATILE MOUNTING OPTIONS
- HIGH THIRD ORDER INTERCEPT
- RESISTANT TO INPUT OVERLOAD



Telewave TLA Series in-line preamplifiers use surface-mount bipolar devices to amplify low level RF signals by up to 34 dB. The primary application of these preamplifiers is to improve the noise figure of a receiver system. Preamps compensate for splitter insertion loss or losses from long coax cable runs, and increase signal levels to spectrum analyzers or other test equipment.

Each preamplifier is housed in a rugged, custom made, RF-tight aluminum enclosure. The DC input is reverse polarity protected, and equipped with a high-pass filter to eliminate RFI. Preamplifiers are tuned to customer specified center frequencies.

COMMON SPECIFICATIONS	
Impedance / VSWR (max)	50 ohms / 1.3:1
Noise figure (typ)	2.5 dB
Gain (factory adjusted)	30-88 MHz: +8 to +34 dB
(Standard gain is 16 dB +/- 1 dB)	132-512 MHz: +6 to +28 dB
	760-960 MHz: +6 to +21 dB
1 dB compression (typ)	+25 dBm
3rd order intercept (typ)	+35 dBm
Power requirements	+12 to +24 VDC, 170 mA
Transient protection	20 kV / 1 µs
Temperature range	0°C to +40°C
Enclosure	Gold or clear alodine
Hardware	Stainless steel
Connectors	N Female (SMA, BNC opt.)
Dimensions (HWD) in. (cm)	1.3 x 2.25 x 2.0 (3.3 x 5.7 x 5.1)
Footprint in. (cm)	3.25 x 2.25 (8.3 x 5.7)
Net weight oz (g)	3.8 (108)
Shipping weight lb. (kg)	1 (0.45)

MODEL	FREQUENCY	BANDWIDTH
TLA50-12	30-88 MHz	60 MHz
TLA150-12	132-174 MHz	50 MHz
TLA220-12	216-250 MHz	50 MHz
TLA330-12	320-390 MHz	70 MHz
TLA450-12	400-512 MHz	112 MHz
TLA760-12	763-824 MHz	50 MHz
TLA860-12	806-960 MHz	50 MHz

NOTE: These preamplifiers are for receiver use only. They are not designed to accept transmitter power levels.

TGA SERIES
PHEMT PREAMPLIFIERS

FEATURES

- VERY LOW NOISE
- 50 OHM INPUT/OUTPUT
- OVER-VOLTAGE / POLARITY PROTECTION
- VERSATILE MOUNTING OPTIONS
- COMMON PORT INDUCTANCE

DC input

Telewave TGA Series in-line preamplifiers utilize PHEMT devices to amplify low-level RF signals by up to 18 dB. The primary application of these preamplifiers is to improve the noise figure of a receiver system. Preamps compensate for splitter insertion loss or losses from long coax cable runs, and increase signal levels to spectrum analyzers or other test equipment.

Each preamplifier is housed in a rugged, custom made, RF-tight aluminum enclosure. The DC input is reverse polarity protected, and equipped with a high-pass filter to eliminate RFI.

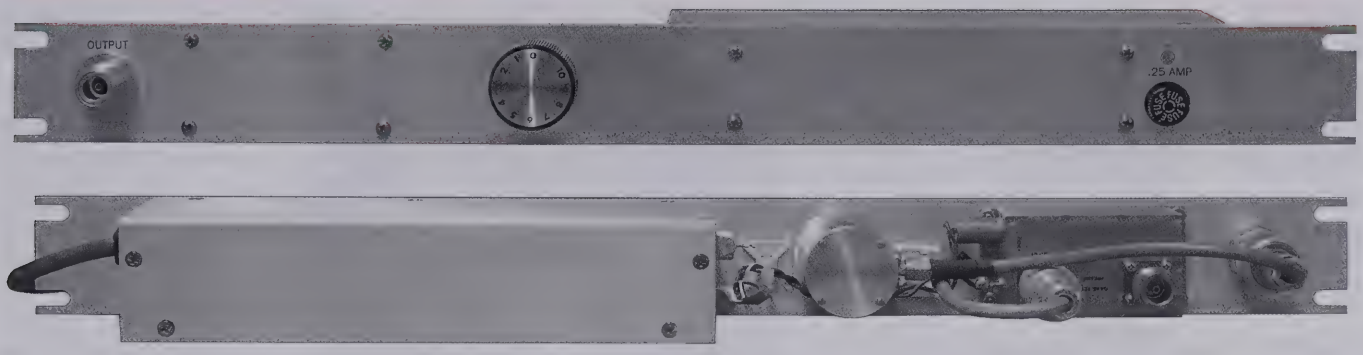
NOTE: These preamplifiers are for receiver use only. They are not designed to accept transmitter power levels.

MODEL	TGA150-12	TGA220-12	TGA450-12	TGA750-12	TGA860-12
Frequency range	132-174 MHz	220-250 MHz	400-512 MHz	763-824 MHz	806-960 MHz
Bandwidth (typ)	5 MHz	6 MHz	60 MHz	100 MHz	100 MHz
Noise figure (typ)	0.4 dB	0.5 dB	0.5 dB	0.7 dB	0.7 dB
Gain (typ)	+18 dB	+18 dB	+17 dB	+13 dB	+13 dB
COMMON SPECIFICATIONS					
Impedance / VSWR (max)	50 ohms / 1.3:1				
1 dB compression (typ)	+12 dBm				
3rd order intercept (typ)	+26 dBm				
Power requirements	+9 to +18 VDC, 40 mA				
Transient protection	40 kV / 1 µs				
Temperature range	0° to +40°C				
Enclosure	Irridited aluminum				
Hardware	Stainless steel				
Connectors	N Female (SMA, BNC opt.) Teflon dielectric, gold pin				
Dimensions (HWD) in. (cm)	1.5 x 2.5 x 0.7 (3.8 x 6.4 x 1.8)				
Net weight oz (g)	5.4 (154)				
Shipping weight lb. (kg)	1 (0.45)				

All specifications subject to change without notice

TWR1 SERIES

RACK MOUNT PHEMT PREAMPLIFIERS



The TWR-1 Series of Rack Mount PHEMT Preamplifiers provide up to +18 dB of user-controllable gain in a receiver system. These preamps provide extra gain to compensate for loss of signal from tower extension, receiver filtering, or long cable runs. Each unit consists of a low-noise PHEMT preamplifier, a 10 dB rotary step attenuator, and a regulated switching power supply mounted on a 19-inch single rack-unit aluminum panel. Primary input power is 120 or 220 VAC, and DC backup requires +11 to +15 VDC. The DC input is reverse polarity protected, and equipped with a high-pass filter to eliminate RFI. Standard gain is +1 to +11 dB. Any range between +1 to +11 and +8 to +18 dB may be specified, depending on frequency.

NOTE: These preamplifiers are for receiver use only. They are not designed to accept transmitter power levels.

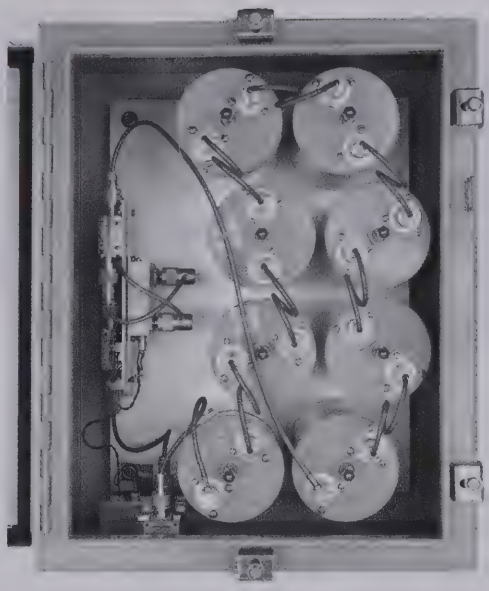
MODEL	TWR1-150	TWR1-220	TWR1-450	TWR1-760	TWR1-860
Frequency range	132-174 MHz	200-250 MHz	400-512 MHz	763-824 MHz	806-960 MHz
Bandwidth (typ)	5 MHz	6 MHz	50 MHz	100 MHz	100 MHz
Noise figure (typ)	0.4 dB	0.5 dB	0.5 dB	0.7 dB	0.7 dB
Gain range (typ)	+1 to +11 dB +8 to +18 dB	+1 to +11 dB +8 to +18 dB	+1 to +11 dB +7 to +17 dB	+1 to +11 dB +4 to +14 dB	+1 to +11 dB +4 to +14 dB
COMMON SPECIFICATIONS					
Impedance / VSWR (typ)		50 ohms / 1.3:1			
1 db compression (typ)		+12 dBm			
3rd order intercept (typ)		+26 dBm			
Transient protection		40 kV / 1 µs			
Temperature range		0°C to +40°C			
Power requirements	AC	120 VAC (std.) or 220 VAC (opt.)			
	DC	+11.5 to +15 VDC or +9 to +18 VDC			
Current drain (typ)		50 mA			
Dimensions (HWD) in. (cm)		1.75 x 19 x 5 (4.5 x 48.3 x 12.7)			
Connectors		N Female			
Net weight lb. (kg)		2.5 (1.1)			
Shipping weight lb. (kg)		3.5 (1.6)			

TOWER TOP PREAMPLIFIERS
WITH INTEGRATED PRESELECTORS

Telewave Integrated Tower Top Preamplifier systems recover low-level signals from long or high loss transmission lines and optimize system performance. The Telewave system allows single, multi-band and/or multi-window operation in the 300-400, 400-512, 793-824, and 806-901 MHz receiver bands.

The RF preamplifier is designed with two PHEMT devices in a redundant hybrid configuration. A single device failure causes a 6 dB reduction in gain, but the amplifier continues to operate with stable impedance. This provides high operational reliability. Very low loss input circuits provide the best possible noise figure. DC surge and reverse voltage protection is provided.

The preselector filter systems incorporate combline, cavity and multi-window technologies.



TTPA-3548 Tower Top Preamp/Preselector

Each filter is custom designed to operate in the most adverse RF environments.

The base power supply provides DC coupling and decoupling to the transmission line and connection to the receiver distribution system.

DC current levels are monitored with a built-in metering panel.

The enclosure is fully weather-sealed, compliant with NEMA 4.

ELECTRICAL SPECIFICATIONS			
Frequency ranges		300-512, 793-824, 896-901 MHz	
System gain (max, single band)		17 dB (factory adjusted)	
3rd order intercept (typ)		+40 dB	
Noise figure (typ)		0.8 dB	
VSWR		1.3:1	
Lightning protection		Impulse supressor (Polyphaser)	
Power requirements		+15 VDC / 280 mA (+12 VDC opt.)	
Temperature range		-40°C to +70°C	
MECHANICAL SPECIFICATIONS		**Dimensions (HWD)** in. (cm)	**Weight** lb. (kg)
Tower box	**TTPA-4586**	24 x 20 x 12 (61 x 51 x 31)	39 (17.7)
	TTPA-8626	16 x 16 x 6 (41 x 41 x 15)	39 (17.7)
	TTPA-8690	16 x 16 x 10 (41 x 41 x 25)	39 (17.7)
Base supply		19 x 3.5 x 7.25 (48 x 9 x 14)	4.7 (2.1)
Finish	**Tower box**	NEMA 4 - Gray polyester powder coat	
	Base supply	Grained aluminum	
Connectors		N Female	

All specifications subject to change without notice

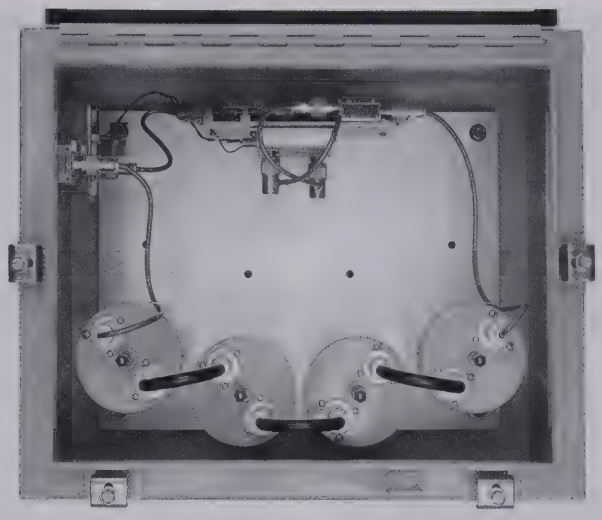
TTPA-4544

TOWER TOP PREAMPLIFIER / PRESELECTOR

Telewave Integrated Tower Top Preamplifier systems recover low-level signals from long or high loss transmission lines and optimize system performance. The Telewave system enables single or multi-window operation in the 450-512 MHz receiver bands.

The RF preamplifier is designed with two PHEMT devices in a redundant hybrid configuration. A single device failure causes a 6 dB reduction in gain, but the amplifier continues to operate with stable impedance. This provides high operational reliability. Very low loss input circuits provide the best possible noise figure. DC surge and reverse voltage protection is provided.

The preselector filter systems incorporate combline, cavity and multi-window technologies.



TTPA-4544 Towertop Preamplifier

Each filter is custom designed to operate in the most adverse RF environments.

The base power supply provides DC coupling and decoupling to the transmission line and connection to the receiver distribution system.

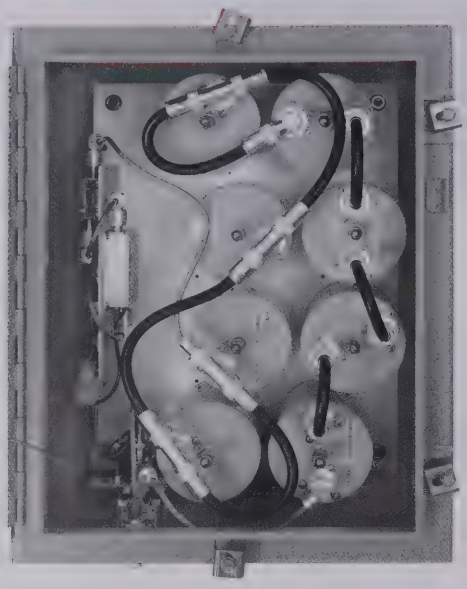
DC current levels are monitored with a built-in metering panel.

The enclosure is fully weather-sealed, compliant with NEMA 4.

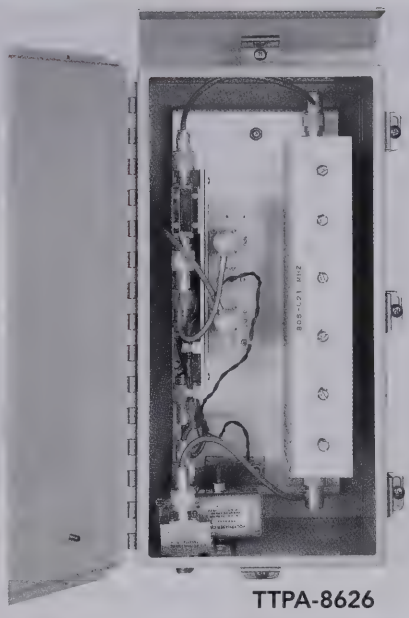
ELECTRICAL SPECIFICATIONS		
Frequency ranges (MHz)		455-460, 465-470, 470-512
System gain (single band)		17 dB (factory adjusted)
Noise figure (typ)		0.8 dB
3rd order intercept (typ)		+40 dB
Power requirements		+15 VDC / 280 mA (+12 VDC opt.)
VSWR		1.3:1
Lightning protection		Impulse supressor (Polyphaser)
Temperature range		-40°C to +70°C
MECHANICAL SPECIFICATIONS		
Dimensions	Tower box (HWD) in. (cm)	20 x 16 x 11.5 (50.8 x 40.6 x 29.2)
	Base supply	19 x 3.5 x 7.25 (48.3 x 8.9 x 18.4)
Weight	Tower box lb. (kg)	39 (17.7)
	Base supply	4.7 (2.1)
Finish	Tower box	NEMA 4 - Gray polyester powder coat
	Base supply	Grained aluminum
Connectors		N Female

TTPA-8626, 8644, 8648

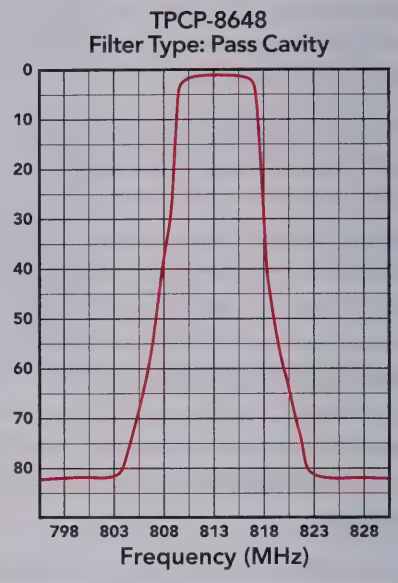
TOWER TOP PREAMPLIFIER / PRESELECTOR

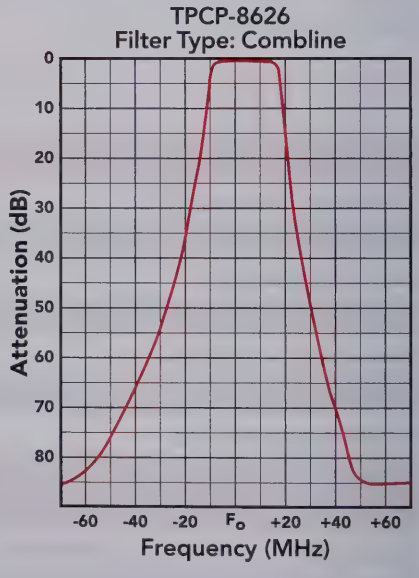


TTPA-8648



TTPA-8626





ELECTRICAL SPECIFICATIONS		
Frequency range	806-960 MHz	
System gain (typ)	15 dB to 17 dB	
Preselector Bandwidth (MHz)	5, 6, 10, 15, 20	
Noise figure	**Bipolar**	**PHEMT**
	2.7 dB	1.2 dB
3rd order intercept Point	+35 dBm	+33 dBm
Redundancy	Hybrid combined redundant pair with tower top bypass relay	
DC Input Voltage	+15 VDC / 280 mA (+12 VDC opt.)	
Input VSWR	<1.3:1	
Lightning protection	Impulse suppressor type	
Temperature range	-40°C to +70°C	

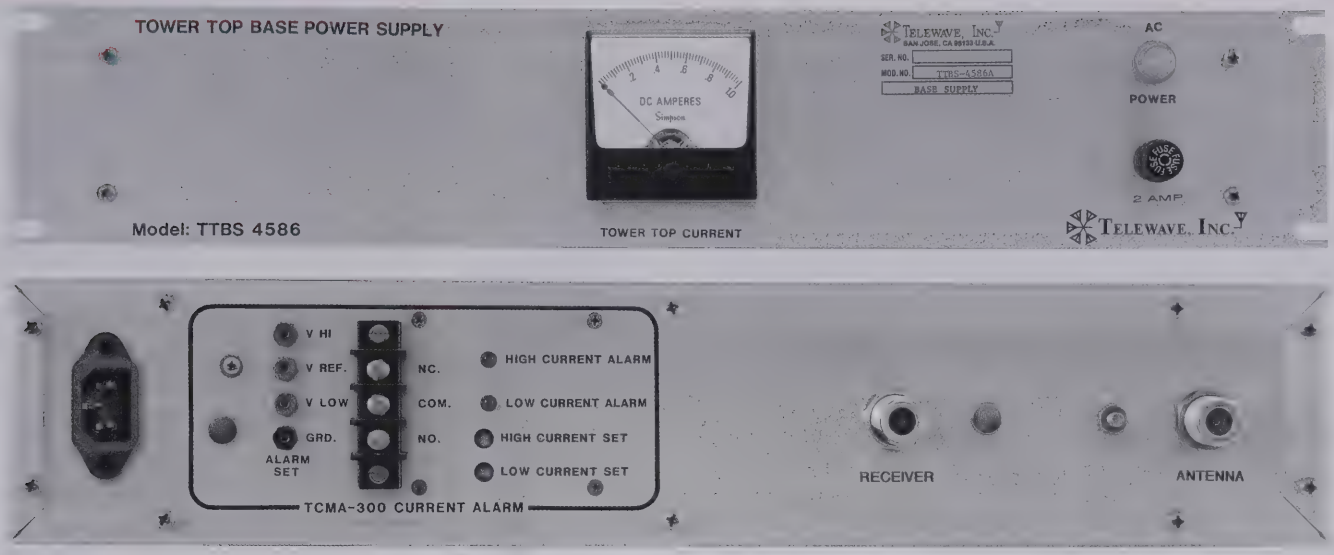
MECHANICAL SPECIFICATIONS	
Dimensions	**HWD in. (cm)**
10, 15, 20 MHz BW	16 x 8 x 6 (40.6 x 30.3 x 15.2)
5, 6 MHz BW	16 x 16 x 8 (40.6 x 40.6 x 30.3)
Weight: Tower box lb. (kg)	39 (17.7)
Connector type	N-Type, gold center pin
Finish: Tower box	NEMA 4 - Gray polyester powder coat

Optional sampling port available, connected to input of preselector for tower-top effective sensitivity measurements. Requires extra coax run.

All specifications subject to change without notice

TTBS-4586

TOWER TOP BASE POWER SUPPLY



The Telewave TTBS-4586 Base Power Supply provides up to 1 amp of regulated DC power for any Telewave tower mounted preamp.

The TTBS-4586 is designed around a custom power supply, which supplies +15 VDC to the preamp via the coax cable. Voltage is coupled to the transmission line by a Polyphaser GX series impulse suppressor, which incorporates a DC power injector.

The Base Power Supply accepts AC or optional DC input, or both, depending on system requirements. A built-in DC-DC converter allows DC input up to 75 VDC. The panel requires a 3.5" x 19" rack space, and includes a 1 amp current meter.

The optional TCMA-300 current monitor and alarm panel provides adjustable high and low current trip points with form "C" contact closure and LED status alarm.

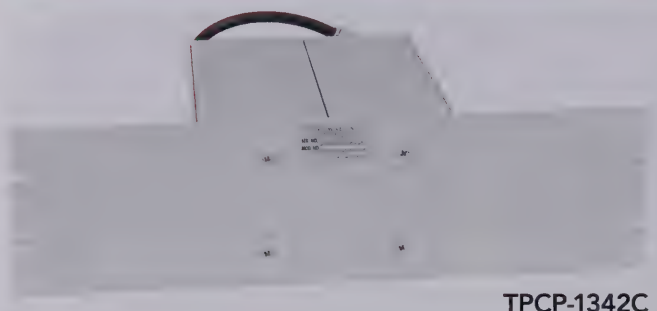
A front panel step attenuator is also available.

ELECTRICAL SPECIFICATIONS	
AC input voltage	100-240 VAC, 50-60 Hz / 0.4 A
DC output voltage (to tower unit)	+15 VDC / 1A
Stand by dc input voltage (opt)	+/- 9-18, 18-36, or 36-75 VDC
Input / output VSWR	<1.3:1
Lightning protection	Impulse suppressor, 20 kA
Temperature range	-40°C to +70°C
MECHANICAL SPECIFICATIONS	
Dimensions (HWD) in. (cm)	3.5 x 19 x 7.25 (8.9 x 48.3 x 18.4)
Weight lb. (kg)	4.7 (2.1)
RF Connectors	N-female
Finish	Grained aluminum, clear alodine
Optional front panel	Black paint

All specifications subject to change without notice

TPCP-1342C / TPCP-1343C

COMPACT VHF AIRBAND PRESELECTORS

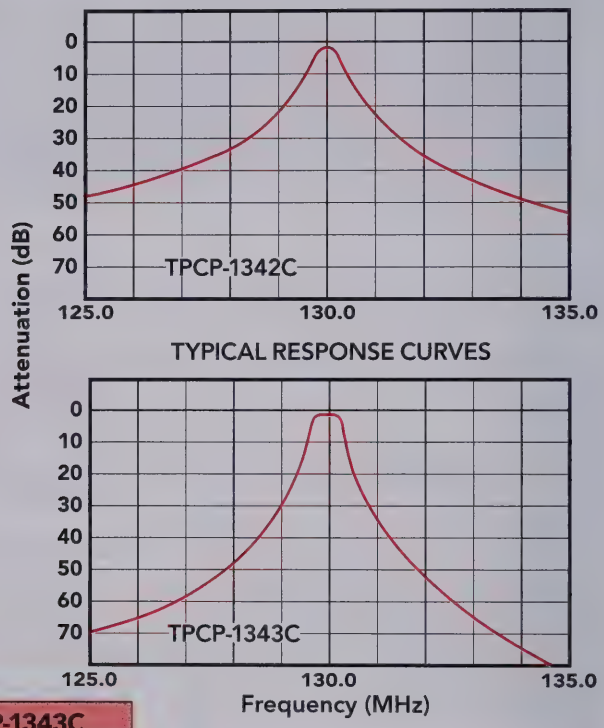


TPCP-1342C

TPCP-1343C

The TPCP-1342C and TPCP-1343C offer high performance in a compact design for the VHF Air band. A custom extruded 4-inch square cavity allows horizontal mounting on a standard 19-inch rack, with rack height of 5.25".

The TPCP-1342C uses two cavities to provide typical attenuation of better than 50 dB at +/- 5 MHz. The TPCP-1343C uses three cavities, and provides typical attenuation of better than 70 dB.



TYPICAL RESPONSE CURVES

SPECIFICATIONS	TPCP-1342C	TPCP-1343C
Frequency range	118-136 MHz	
Bandpass (typ)	700 KHz	1.5 MHz
Attenuation at +/- 5 MHz (typ)	45 dB	70 dB
Insertion loss (typ)	2.0 dB	2.0 dB
Power input (max)	350 watts	
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	2 / 4"	3 / 4"
Connectors	N Female, UHF (opt.)	
Dimensions (HWD) in. (cm)	5.25 x 19 x 17 (13.3 x 48.3 x 43.2)	
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Weight lb. (kg)	13 (5.9)	16 (7.3)

All specifications subject to change without notice

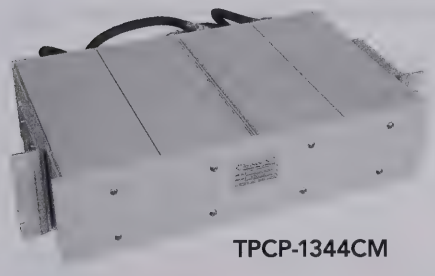
TPCP-1344C / TPCP-1344CM

COMPACT VHF AIRBAND PRESELECTOR

The TPCP-1344C/CM offers high performance in a compact design for the 118-136 MHz VHF airband. The TPCP-1344C provides a bandpass of 2 MHz or less, with typical isolation of better than 50 dB at +/- 5 MHz, and insertion loss of 1.5 dB or less.

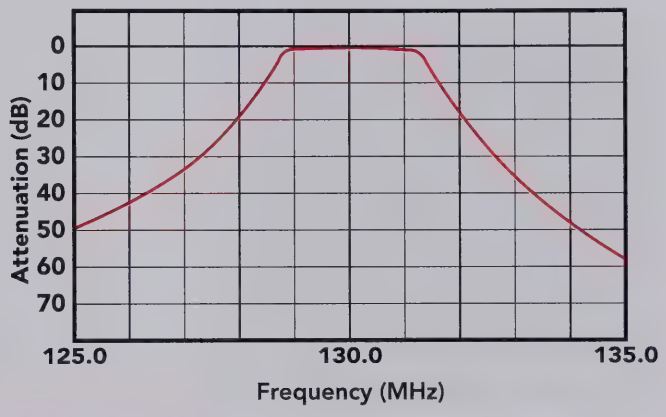
A custom extruded 4-inch square cavity allows horizontal mounting on a standard 19-inch rack, with rack height of 5.25"(C) and 4"(CM). The "C" model mounts in a 19-inch EIA rack, and the "CM" has adjustable mounting tabs for installation in a cabinet.

TPCP-1344C



TPCP-1344CM

TYPICAL RESPONSE CURVES



SPECIFICATIONS - TPCP-1344C / CM		
Frequency range		118-136 MHz
Bandpass (max)		2 MHz
Attenuation at +/- 5 MHz Fc (min)		50 dB
Insertion loss (typ)		1.5 dB
Power input (max)		350 watts
Impedance (nom) / VSWR (max)		50 ohms / 1.5:1
Temperature range		-30°C to +70°C
Number of cavities / size		4 / 4"
Connectors		N Female, UHF (opt.)
Dimensions (HWD) in. (cm) (Tuners fully extended)	C CM	5.25 x 19 x 18 (13.3 x 48.3 x 45.7) 4 x 19 x 18 (10.2 x 48.3 x 45.7)
Mounting	C CM	19" rack mount 19" cabinet mount
Finish		Alodine / Gray acrylic enamel
Weight lb. (kg)		19.5 (8.9)

TPCP-1442C / TPCP-1443C

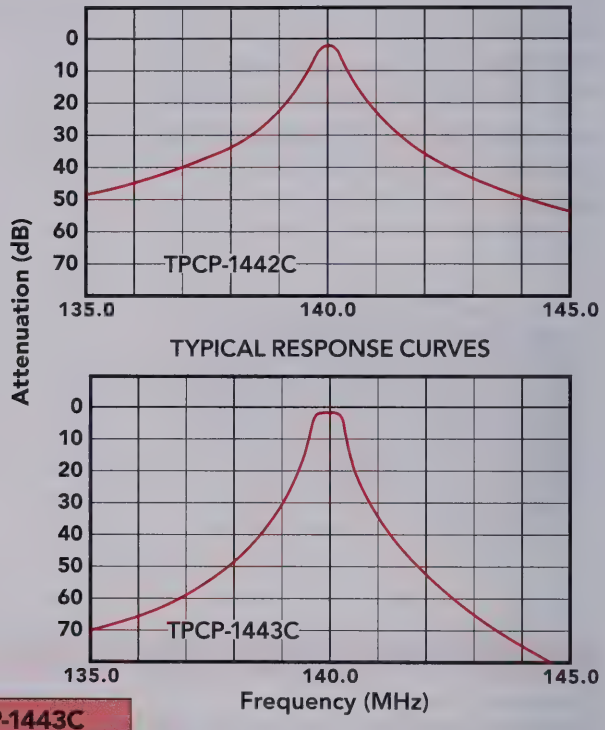
COMPACT VHF PRESELECTORS

TPCP-1442C

TPCP-1443C

The TPCP-1442C and TPCP-1443C offer high performance in a compact design for the 135-151 MHz VHF band.

A custom extruded 4-inch square cavity allows horizontal mounting on a standard 19-inch rack, with rack height of 5.25". The TPCP-1442C uses two cavities to provide typical attenuation of better than 50 dB at +/- 5 MHz, and insertion loss of 1.0 dB or less. The TPCP-1443C uses three cavities, and provides typical attenuation of better than 70 dB, and insertion loss of 1.5 dB or less.



TYPICAL RESPONSE CURVES

SPECIFICATIONS	TPCP-1442C	TPCP-1443C
Frequency range	135-151 MHz	
Bandpass (typ)	700 KHz	1.5 MHz
Attenuation at +/- 5 MHz	50 dB (min)	70 dB (min)
Insertion loss (typ)	1.0 dB	2.0 dB
Power input (max)	350 watts	
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	2 / 4"	3 / 4"
Connectors	N Female, UHF (opt.)	
Dimensions (HWD) in. (cm)	5.25 x 19 x 15 (13.3 x 48.3 x 38.1)	
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Weight lb. (kg)	12 (5.4)	15 (6.8)

All specifications subject to change without notice

TPCP-1444C / TPCP-1444CM

COMPACT VHF PRESELECTOR

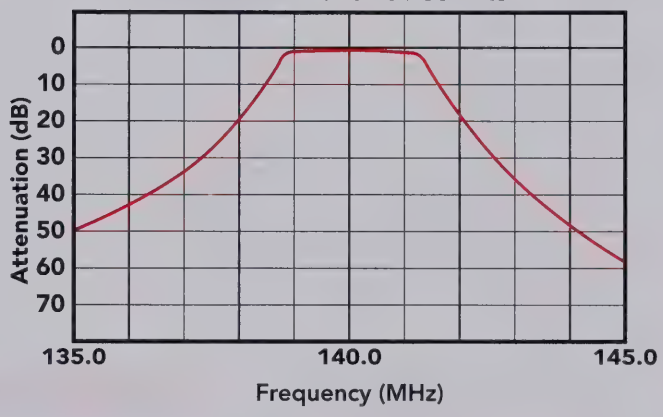
The TPCP-1444C/CM offers high performance in a compact design for the 135-151 MHz VHF band. The TPCP-1444C provides a bandpass of 2 MHz or less, with typical isolation of better than 50 dB at +/- 5 MHz, and insertion loss of 1.5 dB or less.

A custom extruded 4-inch square cavity allows horizontal mounting on a standard 19-inch rack, with rack height of 5.25" (C) and 4" (CM). The "C" model mounts in a 19-inch EIA rack, and the "CM" has adjustable mounting tabs for installation in a cabinet.

TPCP-1444C

TPCP-1444CM

TYPICAL RESPONSE CURVES



SPECIFICATIONS - TPCP-1444C / CM		
Frequency range		135-151 MHz
Bandpass (max)		2 MHz
Attenuation at +/- 5 MHz Fc (min)		50 dB
Insertion loss (typ)		1.5 dB
Power input (max)		350 watts
Impedance (nom) / VSWR (max)		50 ohms / 1.5:1
Temperature range		-30°C to +70°C
Number of cavities / size		4 / 4"
Connectors		N Female, UHF (opt.)
Dimensions (HWD) in. (cm) (Tuners fully extended)	C CM	5.25 x 19 x 18 (13.3 x 48.3 x 45.7) 4 x 19 x 18 (10.2 x 48.3 x 45.7)
Mounting	C CM	19" rack mount 19" cabinet mount
Finish		Alodine / Gray acrylic enamel
Weight lb. (kg)		19.5 (8.9)

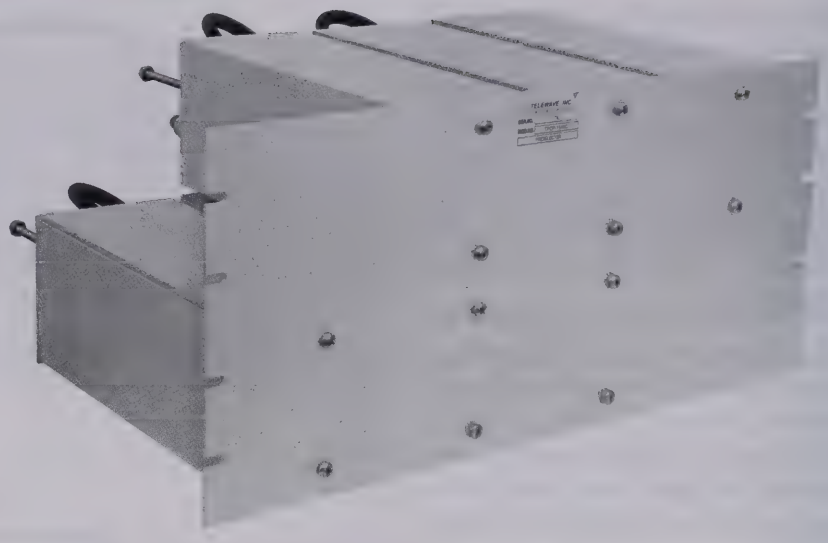
TPCP-1446C

COMPACT VHF PRESELECTOR

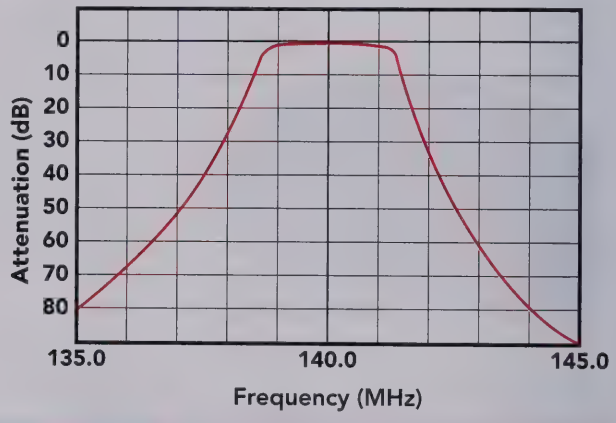
The TPCP-1446C offers high performance in a compact design for the 135-151 MHz VHF band.

Six square, pass-reject cavities provide greater than 80 dB attenuation at +/- 5 MHz, with a bandpass of 2.2 MHz or less, and insertion loss of 2.5 dB or less.

The custom-extruded 4" cavities allow horizontal rack mounting on a standard 19" rack, with rack height of only 8.75".



TYPICAL RESPONSE CURVES



SPECIFICATIONS - TPCP-1446C	
Frequency range	135-151 MHz
Bandpass (max)	2.2 MHz
Attenuation at +/- 5 MHz	80 dB
Insertion loss (typ)	2.5 dB
Power input (max)	350 watts
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
Number of cavities / size	6 / 4"
Connectors	N Female, UHF (opt.)
Dimensions (HWD) in. (cm) (Tuners fully extended)	8.75 x 19 x 18 (22.2 x 48.3 x 45.7)
Mounting	19" rack mount
Finish	Alodine / Gray acrylic enamel
Weight lb. (kg)	36.5 (16.6)

All specifications subject to change without notice

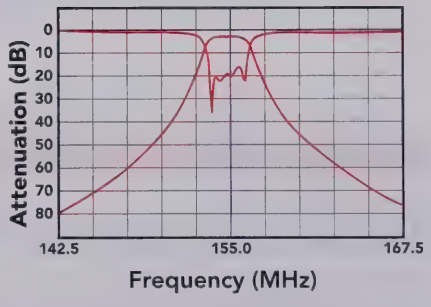
TPCP-1414, -1514, -1614, -1714
COMPACT VHF PRESELECTORS

The TPCP-1414, -1514, -1614, and -1714 are very compact, 4-cavity preselectors for the VHF band from 140-180 MHz. These preselectors produce a minimum of 45 dB attenuation, and are ideal for limited space applications, including portable repeaters and mobile installations.

Simple mounting to any flat surface allows maximum flexibility. Each model covers a 10 MHz tuning range.

SPECIFICATIONS - TPCP-1414, 1514, 1614, 1714		
Frequency range	1414	140-150 MHz
	1514	150-160 MHz
	1614	160-170 MHz
	1714	170-180 MHz
Bandpass (typ)		2 MHz
Attenuation at +/- 5 MHz		45 dB
Insertion loss (typ)		1.5 dB
Power input (max)		50 watts
Impedance (nom) / VSWR (max)		50 ohms / 1.5:1
Temperature range		-30°C to +70°C
Number of cavities / size		4 / 1"
Connectors		BNC female, N female (opt)
Dimensions (HWD) in. (cm)		1.25 x 4 x 5 (3.2 x 10.2 x 12.7)
Mounting		Flat surface
Finish		Black enamel
Net weight lb. (kg)		1 (0.45)
Shipping weight lb. (kg)		2 (0.9)

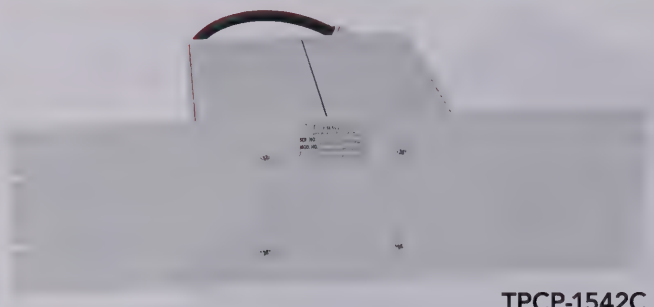
TYPICAL RESPONSE CURVES



Appearance of current production models may vary from picture.

TPCP-1542C / TPCP-1543C

COMPACT VHF PRESELECTORS

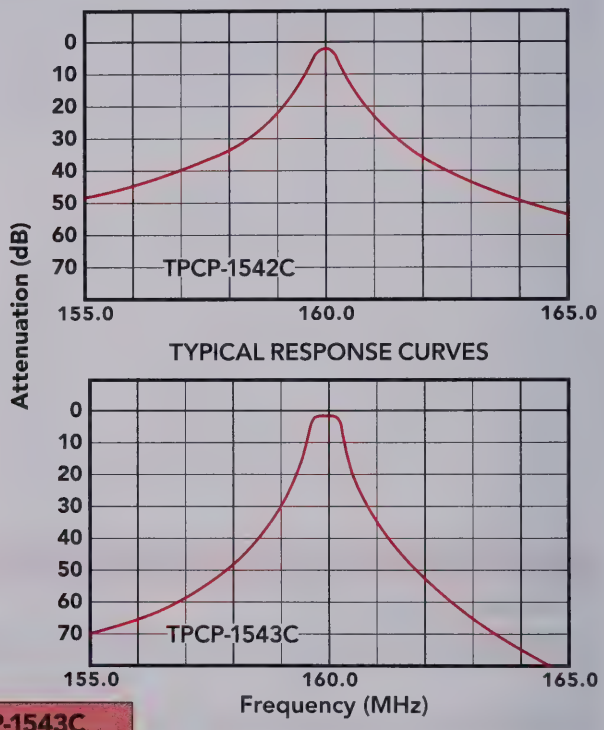


TPCP-1542C

TPCP-1543C

The TPCP-1542C and TPCP-1543C offer high performance in a compact design for the 148-174 MHz VHF band.

Custom-extruded 4-inch square cavities allow horizontal mounting on a standard 19-inch rack, with rack height of 5.25". The TPCP-1542C uses two cavities to provide typical attenuation of better than 50 dB at +/- 5 MHz, and insertion loss of 1.0 dB or less. The TPCP-1543C uses three cavities, and provides typical attenuation of better than 70 dB, and insertion loss of 1.5 dB or less.



TYPICAL RESPONSE CURVES

SPECIFICATIONS	TPCP-1542C	TPCP-1543C
Frequency range	148-174 MHz	
Bandpass (typ)	700 KHz	1.5 MHz
Attenuation at +/- 5 MHz	50 dB (min)	70 dB (min)
Insertion loss (typ)	1.0 dB	2.0 dB
Power input (max)	350 watts	
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	2 / 4"	3 / 4"
Connectors	N Female, UHF (opt.)	
Dimensions (HWD) in. (cm)	5.25 x 19 x 14 (38.7 x 48.3 x 35.6)	
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Weight lb. (kg)	11 (5)	14 (6.4)

All specifications subject to change without notice

TPCP-1544C / TPCP-1544CM

COMPACT VHF PRESELECTOR

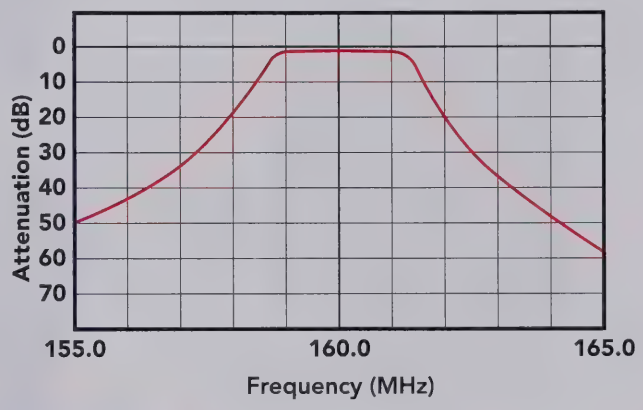
The TPCP-1544C/CM offers high performance in a compact design for the 148-174 MHz VHF band. The TPCP-1544C provides a bandpass of 2 MHz or less, with typical isolation of better than 50 dB at +/- 5 MHz, and insertion loss of 1.5 dB or less.

A custom extruded 4" square cavity allows horizontal mounting on a standard 19" rack, with rack height of 5.25" (C) and 4" (CM). The "C" model mounts in a 19" EIA rack, and the "CM" has adjustable mounting tabs for installation in a cabinet.

TPCP-1544C

TPCP-1544CM

TYPICAL RESPONSE CURVES



SPECIFICATIONS - TPCP-1544C / CM		
Frequency range		148-174 MHz
Bandpass (max)		2 MHz
Attenuation at +/- 5 MHz Fc (min)		50 dB
Insertion loss (typ)		1.5 dB
Power input (max)		350 watts
Impedance (nom) / VSWR (max)		50 ohms / 1.5:1
Temperature range		-30°C to +70°C
Number of cavities / size		4 / 4"
Connectors		N Female, UHF (opt.)
Dimensions (HWD) in. (cm) (Tuners fully extended)	C CM	5.25 x 19 x 15 (13.3 x 48.3 x 38.1) 4 x 19 x 15 (10.2 x 48.3 x 38.1)
Mounting	C CM	19" rack mount 19" cabinet mount
Finish		Alodine / Gray acrylic enamel
Weight lb. (kg)		18.25 (8.3)

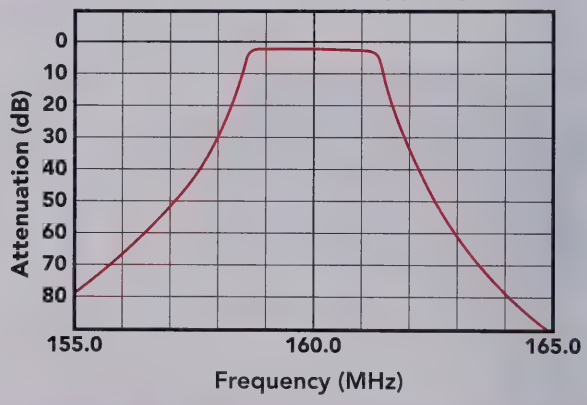
TPCP-1546C
COMPACT VHF PRESELECTOR

The TPCP-1546C offers high performance in a compact design for the 148-174 MHz VHF band.

Six square, pass-reject cavities provide greater than 80 dB attenuation at +/- 5 MHz, with a bandpass of 2.2 MHz or less, and insertion loss of 2.5 dB or less.

The custom-extruded 4-inch cavities allow horizontal rack mounting on a standard 19" rack, with rack height of only 8.75".

TYPICAL RESPONSE CURVES



SPECIFICATIONS - TPCP-1546C	
Frequency range	148-174 MHz
Bandpass (max)	2.2 MHz
Attenuation at +/- 5 MHz	80 dB
Insertion loss (typ)	2.5 dB
Power input (max)	350 watts
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
Number of cavities / size	6 / 4"
Connectors	N Female, UHF (opt.)
Dimensions (HWD) in. (cm) (Tuners fully extended)	8.75 x 19 x 15 (22.2 x 48.3 x 38.1)
Mounting	19" rack mount
Finish	Alodine / Gray acrylic enamel
Weight lb. (kg)	36.5 (16.6)

All specifications subject to change without notice

TPCP-1554, -1556
BANDPASS PRESELECTOR

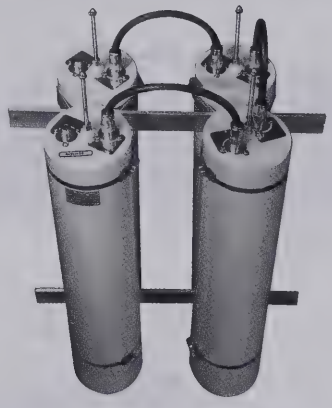
Telewave TPCP-1554 and TPCP-1556 preselectors are specially designed for use with master receive systems to insure rejection of external noise sources. These bandpass preselectors provide optimum receiver desense protection when installed between a receiver multicoupler and the antenna. In addition, their high power capability allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

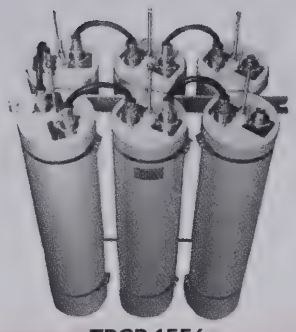
These bandpass filters consist of 4 or 6 series-connected cavities, and are available in a wide range of pass bandwidths. Each model features "sharp-skirt" selectivity with minimum insertion loss. For optimum performance, these bandpass filters are custom tailored to meet individual requirements. Multiple-window configurations can be provided when more than one pass band is required.

Heavy duty materials are used throughout these bandpass filters to insure top performance and long life, and RG214 Mil-Spec cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary. Field re-tuning or adjustment of insertion loss can be accomplished quickly if needed.

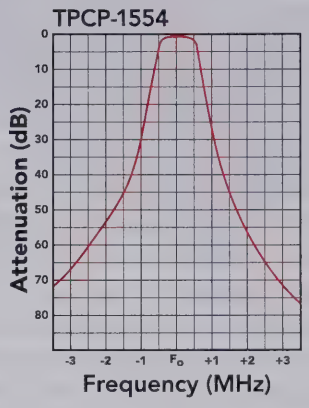


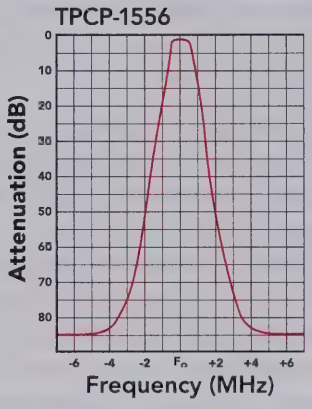
TPCP-1554



TPCP-1556

TYPICAL FILTER RESPONSE CURVES





SPECIFICATIONS	TPCP-1554	TPCP-1556
Frequency range	148-174 MHz	
Bandpass (typ)	700 KHz or less	1.3 MHz or less
Attenuation at +/- 5 MHz	40 dB	80 dB
Insertion loss (typ)	1.5 dB	2.0 dB
Power input (max)	350 watts	
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	4 / 5"	6 / 5"
Connectors	N Female, UHF (opt.)	
Dimensions (HWD) in. (cm)	28 x 19 x 10.5 (71.1 x 48.3 x 26.7)	
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Net weight lb. (kg)	20 (9.1)	29 (13.2)
Shipping weight lb. (kg)	23 (10.4)	32 (14.5)

TPCP-2244, -2246
BANDPASS PRESELECTORS

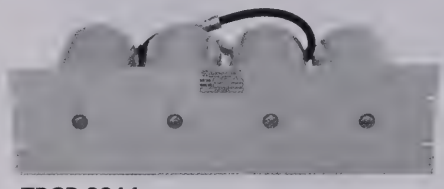
Telewave TPCP-2244 and TPCP-2246 preselectors are specially designed for use with master receive systems to insure rejection of external noise sources. These bandpass preselectors provide optimum receiver desense protection when installed between a receiver multicoupler and the antenna. In addition, their high power capability allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

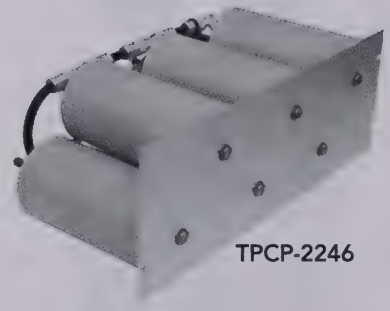
These bandpass filters consist of 4 or 6 series-connected cavities, and are available in a wide range of pass bandwidths. Each model features "sharp-skirt" selectivity with minimum insertion loss. For optimum performance, these bandpass filters are custom tailored to meet individual requirements. Multiple-window configurations can be provided when more than one pass band is required.

Heavy duty materials are used throughout these bandpass filters to insure top performance and long life, and RG214 Mil-Spec cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary. Field retuning or adjustment of insertion loss can be accomplished quickly if needed.

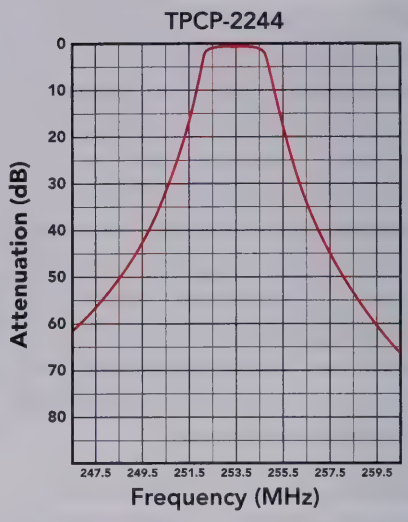


TPCP-2244



TPCP-2246

TYPICAL FILTER RESPONSE



SPECIFICATIONS	TPCP-2244	TPCP-2246
Frequency range	200-300 MHz	
Bandpass (typ)	2 MHz or less	4 MHz or less
Attenuation at +/- 5 MHz	50 dB	80 dB
Insertion loss (typ)	1.5 dB	2.0 dB
Power input (max)	350 watts	
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	4 / 4"	6 / 4"
Connectors	N Female, UHF (opt.)	
Dimensions (HWD) in. cm	5.25 x 19 x 12 13.3 x 48.3 x 30.5	10.5 x 19 x 12 26.7 x 48.3 x 30.5
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Net weight lb. (kg)	20 (9.1)	29 (13.2)
Shipping weight lb. (kg)	23 (10.4)	32 (14.5)

All specifications subject to change without notice

TWDS-2031 Rev. 10/12

TPCP-3544, -3546, -3548
UHF BANDPASS PRESELECTOR

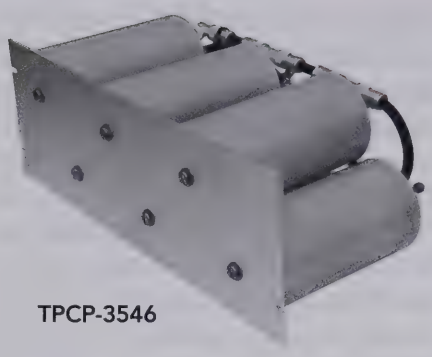
Telewave TPCP-3544, 3546, and 3548 UHF Bandpass Preselectors are specially designed for use with master receive systems, to ensure rejection of external noise sources. These bandpass preselectors provide optimum receiver desense protection when installed between the receiver multicoupler and the antenna. Their high power capability also allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

These bandpass filters consist of 4, 6, or 8 series-connected cavities, and are available in a wide range of pass bandwidths. Each model features "sharp-skirt" selectivity with minimum insertion loss. For optimum performance, these bandpass filters are custom tailored to meet individual requirements. Multiple-window configurations can be provided when more than one pass band is required.

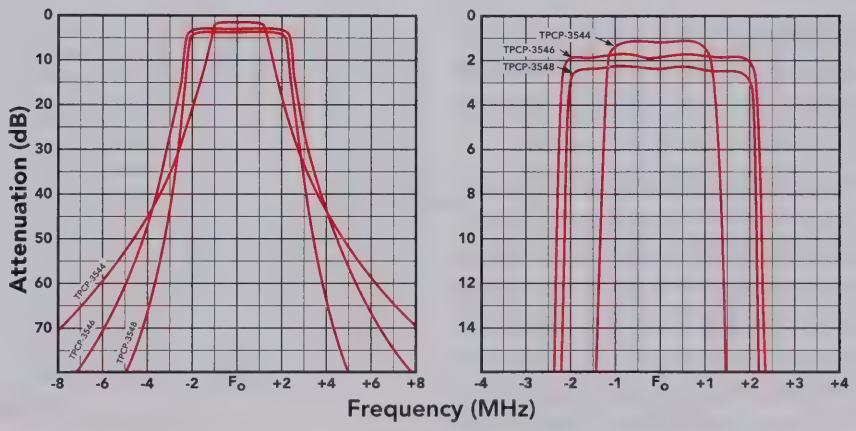
Heavy duty materials are used throughout the bandpass filters to insure top performance and long life, and RG-214 Mil-Spec cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary. Field re-tuning or adjustment of insertion loss can be accomplished quickly if needed.



TPCP-3546

TYPICAL FILTER RESPONSE CURVES



SPECIFICATIONS	TPCP-3544	TPCP-3546	TPCP-3548
Frequency range		300-400 MHz	
Bandpass (typ)	2 MHz	4 MHz	4 MHz
Attenuation (+/- 5 MHz)	50 dB	55 dB	80 dB
Insertion loss (typ)	1.5 dB	2.0 dB	3.0 dB
Power input (max)		350 watts	
Impedance / VSWR (max)		50 ohms / 1.5:1	
Temperature range		-30°C to +70°C	
Number of cavities	4 / 4"	6 / 4"	8 / 4"
Connectors		N Female, UHF (opt.)	
Dimensions (HWD) in.	5.25x19x15	7 x19x15	8.75x19x15
cm	13 x 48 x 38	18 x 48 x 38	22 x 48 x 38
Mounting		19" rack mount	
Finish		Alodine / Gray acrylic enamel	
Net weight lb. (kg)	12 (5.5)	19 (8.6)	24 (10.9)
Shipping weight lb. (kg)	16 (7.3)	28 (12.7)	33 (15)

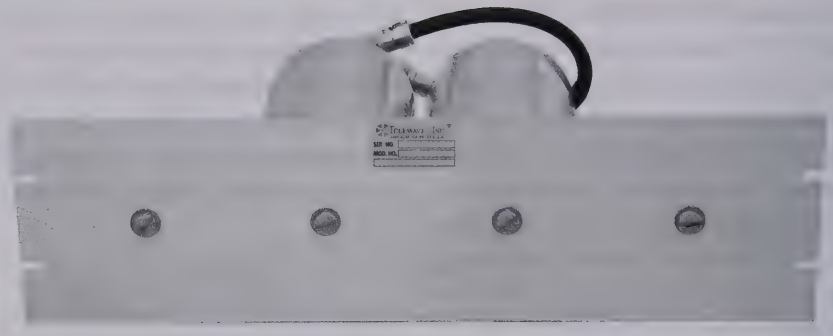
TPCP-4542
BANDPASS PRESELECTOR

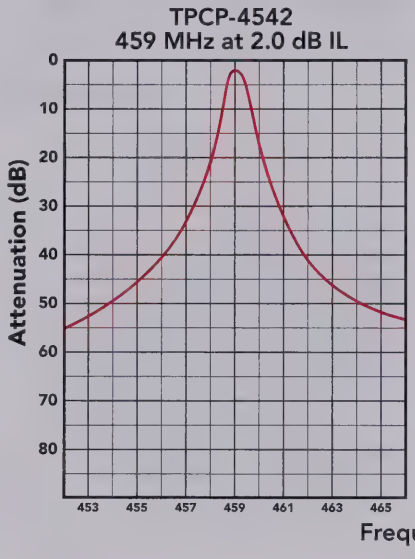
The Telewave TPCP-4542 UHF receiver preselector is specially designed for use in master antenna receive systems, to insure rejection of external noise sources. This bandpass preselector provides optimum protection against desense and adjacent channel interference when installed between the receiver multicoupler and antenna. High power capability also allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

Heavy-duty materials are used throughout this bandpass filter to insure top performance and long service. RG-214 Mil-Spec cable is used for the interconnect, and temperature stability is maintained by the use of a threaded invar tuning rod. Tuners are all silver-plated, and sliding contacts are manufactured from beryllium copper fingerstock. This unit is 19" rack mounted, and comes with N Female connectors standard.

All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary. Field re-tuning or adjustment of insertion loss can be accomplished quickly if needed.





SPECIFICATIONS - TPCP-4542	
Frequency range	400-512 MHz
Bandpass (max)	1 MHz or less
Attenuation at +/- 5 MHz	35 dB
Insertion loss (typ)	1.0 dB
Power input (max)	350 watts
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
Number of cavities / size	2 / 4"
Connectors	N Female
Dimensions (HWD) in. (cm)	5.25 x 19 x 10.5 (13.3 x 48.3 x 26.5)
Mounting	19" rack mount
Finish	Alodine / Gray acrylic enamel
Net weight lb. (kg)	5 (2.3)
Shipping weight lb. (kg)	8 (3.6)

All specifications subject to change without notice

TWDS-2019 Rev. 10/12

TPCP-4544, -4546, -4548
UHF BANDPASS PRESELECTOR

Telewave TPCP-4544, 4546, and 4548 UHF Bandpass Preselectors are specially designed for use with master receive systems, to ensure rejection of external noise sources. These bandpass preselectors provide optimum receiver desense protection when installed between the receiver multicoupler and the antenna. Their high power capability also allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

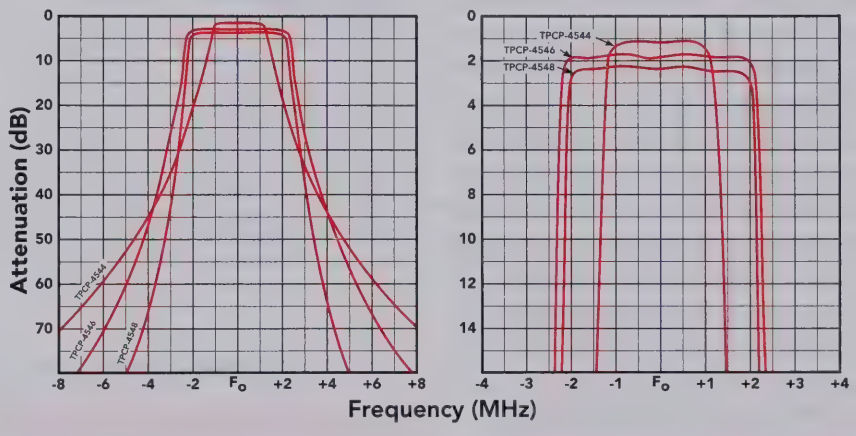
These bandpass filters consist of 4, 6, or 8 series-connected cavities, and are available in a wide range of pass bandwidths. Each model features "sharp-skirt" selectivity with minimum insertion loss. For optimum performance, these bandpass filters are custom tailored to meet individual requirements. Multiple-window configurations can be provided when more than one pass band is required.

Heavy duty materials are used throughout the bandpass filters to insure top performance and long life, and RG-214 Mil-Spec cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary. Field re-tuning or adjustment of insertion loss can be accomplished quickly if needed.

TPCP-4546

TYPICAL FILTER RESPONSE CURVES



SPECIFICATIONS	TPCP-4544	TPCP-4546	TPCP-4548
Frequency range		400-512 MHz	
Bandpass (typ)	2 MHz	4 MHz	4 MHz
Attenuation (+/- 5 MHz)	50 dB	55 dB	80 dB
Insertion loss (typ)	1.5 dB	2.0 dB	3.0 dB
Power input (max)		350 watts	
Impedance / VSWR (max)		50 ohms / 1.5:1	
Temperature range		-30°C to +70°C	
Number of cavities / size	4 / 4"	6 / 4"	8 / 4"
Connectors		N Female, UHF (opt.)	
Dimensions (HWD) in.	5.25x19x10.5	7 x19x10.5	8.75x19x10.5
cm	13 x 48 x 27	18 x 48 x 27	22 x 48 x 27
Mounting		19" rack mount	
Finish		Alodine / Gray acrylic enamel	
Net weight lb. (kg)	10 (4.5)	16 (7.3)	20 (9.1)
Shipping weight lb. (kg)	14 (6.4)	24 (11)	28 (12.7)

TELEWAVE, INC.

450 - 470 MHz

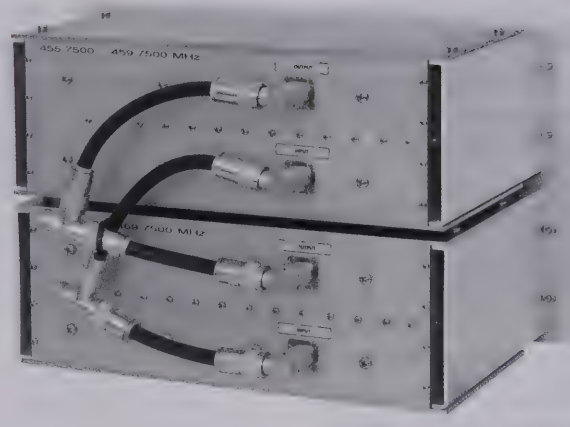
TPCP-45215	455-460 MHz
TPCP-46215	465-470 MHz
TPCP-45215-2	455-470 MHz

TPCP-45215 / 46215 / 45215-2
UHF COMBLINE PRESELECTORS

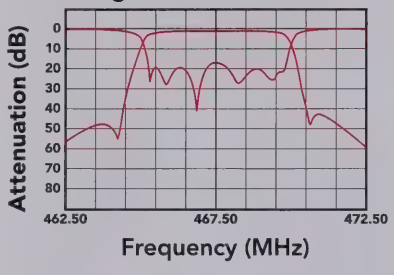
Telewave TPCP-45215/46215 single and TPCP-45215-2 dual window combline preselectors are specially designed for use with master receive systems, to optimize performance on UHF repeater frequencies, and provide excellent rejection of external noise sources. These combline filters provide maximum protection from receiver desense when installed between the receiver multicoupler and the antenna.

The 45215 and 46215 combline filters have a bandpass of 4 MHz, and consist of a series of resonators in a compact enclosure, mounted on a standard 5.25" x 19" panel. The 45215-2 provides two 4 MHz windows on a 10.5" x 19" panel. These units feature "sharp-skirt" selectivity with minimum insertion loss in single or dual configuration. All units are pre-tuned to customer-specified frequencies before shipment to provide optimum performance, and no further adjustment should be necessary.

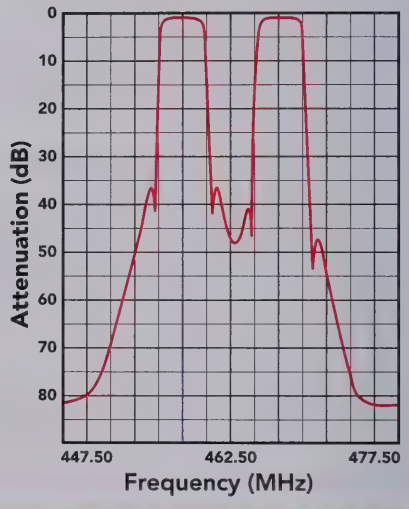
Telewave combline filters offer the ultimate in repeater system performance, maximizing coverage and providing protection against receiver desensitization at congested sites. With new narrowband channel assignments, proper filtering is even more critical. The TPCP-45215 series allows operators of high-density UHF systems to take advantage of new technology, and enhance the performance of existing systems.



TPCP-45215, 46215
Single Window Combline



TPCP-45215-2
Dual Window Combline Preselector



TYPICAL FILTER RESPONSE CURVES

SPECIFICATIONS	TPCP-45125	TPCP-46215	TPCP-45215-2
Configuration	SINGLE WINDOW		DUAL WINDOW
Frequency range (MHz)	455-460	465-470	455-460/465-470
Bandpass (typ)	2 MHz	4 MHz	4 + 4 MHz
Attenuation (typ)	> 35 dB at +/- 3MHz from Fc		
Insertion loss (typ)	2.0 dB		
Impedance / VSWR (max)	50 ohms / 1.5:1		
Temperature range	-30°C to +70°C		
Connectors	N Female		
Dimensions (HWD) in.	5.25 x 19 x 10		10.5 x 19 x 10
Dimensions (HWD) cm	13.3 x 48.3 x 25.4		26.7 x 48.3 x 25.4
Mounting	19" rack mount		
Finish	Clear alodine / black paint		
Net weight lb. (kg)	12 (5.5)		24 (10.9)
Shipping weight lb. (kg)	14 (6.4)		29 (13.2)

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All specifications subject to change without notice
TWDS-2001 Rev. 10/12

TPCP-4514

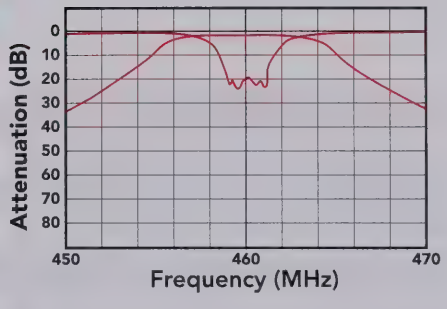
COMPACT UHF PRESELECTOR

The TPCP-4514 is an ultra-compact, 4-cavity preselector for the UHF band from 450-470 MHz. This preselector produces a minimum of 30 dB attenuation, and is ideal for limited space applications, including portable repeaters and mobile installations.

Simple mounting to any flat surface allows maximum flexibility. The TPCP-4514 covers a 20 MHz tuning range.

SPECIFICATIONS - TPCP-4514	
Frequency range	450-470 MHz
Bandpass (typ)	4 MHz
Attenuation at +/- 10 MHz	30 dB
Insertion loss (typ)	2.0 dB
Power input (max)	50 watts
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
Number of cavities / size	4 / 1"
Connectors	N female, BNC female (opt)
Dimensions (HWD) in. (cm) max (including connectors, tuners and mounting tabs	1.1 x 4.9 x 4 (2.8 x 12.4 x 10.2)
Mounting	Flat surface
Finish	Black enamel
Net weight lb. (kg)	1 (0.45)
Shipping weight lb. (kg)	2 (0.9)

TYPICAL RESPONSE CURVES



Appearance of current production models may vary from picture.

TPCP-8642, TPCP-8644
BANDPASS PRESELECTORS

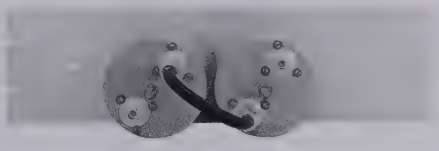
Telewave TPCP-8642 and 8644 Bandpass Preselectors are specially designed for use with 800 MHz receiver systems to insure rejection of external noise sources. These bandpass preselectors provide optimum receiver desense protection when installed between the receiver multicoupler and the antenna. Their high power capability allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

Bandpass preselectors reject all signals outside a selected pass window, and are often preferred at congested sites.

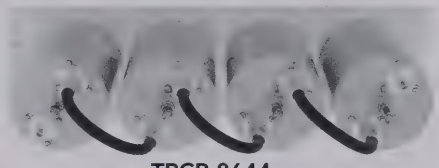
These bandpass filters are available with up to a 5 MHz pass bandwidth, and they consist of 2 or 4 series-connected cavities. Each model features "sharp-skirt" selectivity with minimum insertion loss. For optimum performance, these bandpass filters are custom tailored to meet individual requirements.

Multiple-window configurations can be provided when more than one pass band is required. All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary.

Heavy duty materials are used throughout these bandpass filters to insure top performance and long life, and only RG214 Mil-Spec cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

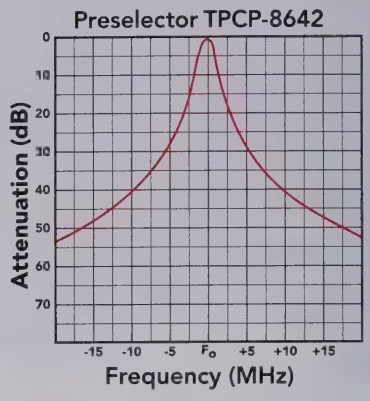


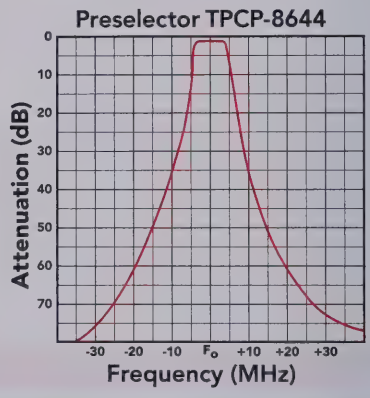
TPCP-8642



TPCP-8644

TYPICAL RESPONSE CURVES





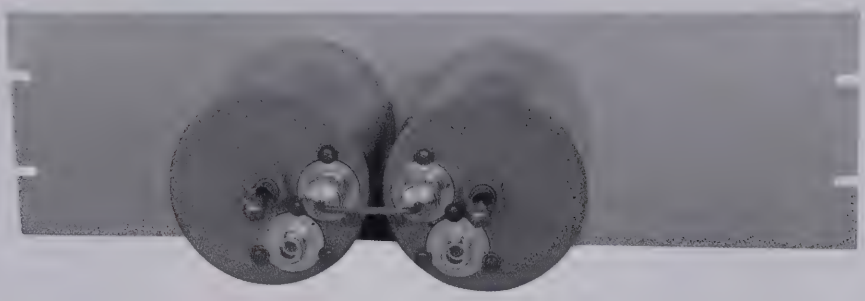
SPECIFICATIONS	TPCP-8642	TPCP-8644
Frequency range	806-960 MHz	
Bandpass (typ)	2 MHz or less	5 MHz or less
Attenuation (+/- 45 from Fc)	90 dB	
Insertion loss (typ)	0.5 dB	1.0 dB
Power input (max)	350 watts	
Impedance / VSWR (max)	50 ohms / 1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities / size	2 / 4"	4 / 4"
Connectors	N Female	
Dimensions (HWD) in.	5.25 x 19 x 10.5	5.25 x 19 x 10.5
cm	13.3 x 48.3 x 26.7	13.3 x 48.3 x 26.7
Mounting	19" rack mount	
Finish	Alodine / Gray acrylic enamel	
Net weight lb. (kg)	8 (3.6)	10 (4.5)
Shipping weight lb. (kg)	12 (5.5)	14 (6.4)

All specifications subject to change without notice

TTPP-8642

BANDPASS / BANDREJECT PRESELECTOR

The Telewave Model TTPP-8642 Bandpass-Bandreject Preselector is designed for use with master receive systems to insure rejection of external noise sources. The TTPP-8642 utilizes an exclusive "side-by-side" coupling technique which produces a 5 MHz bandpass, and a reject characteristic at 45 MHz above the passband.

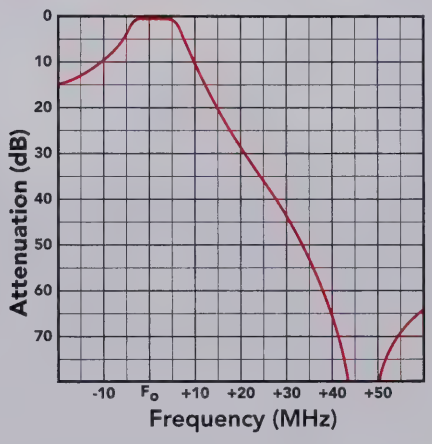


This provides optimum receiver protection when installed between a receiver multicoupler and the antenna. High power capability also allows these units to be used as sideband filters on the outputs of transmitters or transmitter combiners.

These filters cover a 5 MHz pass bandwidth, and they consist of 2 series-connected cavities. They feature "sharp-skirt" selectivity with minimum insertion loss. All units are factory tuned to customer-supplied frequencies and no further adjustment should be necessary.

Heavy duty materials are used throughout these bandpass filters to insure top performance and long life, and Mil-Spec semi-rigid cable is used for interconnections. Temperature stability is maintained from -30 to +70°C by the use of temperature compensators, and threaded invar rod. Tuners are silver plated and sliding contacts are made with beryllium copper fingerstock. All models are 19" rack-mountable, and come with N Female connectors.

TYPICAL RESPONSE CURVE



SPECIFICATIONS - TTPP-8642	
Frequency range	806-960 MHz
Bandpass (max)	5 MHz or less
Attenuation (+45 from Fo)	90 dB
Insertion loss (typ)	0.5 dB
Power input (max)	350 watts
Impedance (nom) / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
Number of cavities / size	2 / 4"
Connectors	N Female
Dimensions (HWD) in. (cm)	5.25 x 19 x 10.5 (13.3 x 48.3 x 26.5)
Mounting	19" rack mount
Finish	Alodine / Gray acrylic enamel
Net weight lb. (kg)	8 (3.6)
Shipping weight lb. (kg)	12 (5.5)

TELEWAVE, INC.

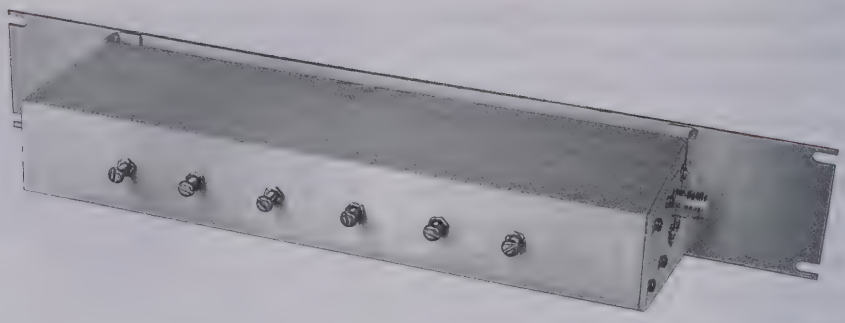
806 - 890 MHz

TPCP-8626	806-821 MHz
TPCP-8626B	824-849 MHz
TPCF-8926	870-890 MHz
TPCF-8926B	870-890 MHz

TPCP-8626, TPCF-8926
COMBLINE PRESELECTORS

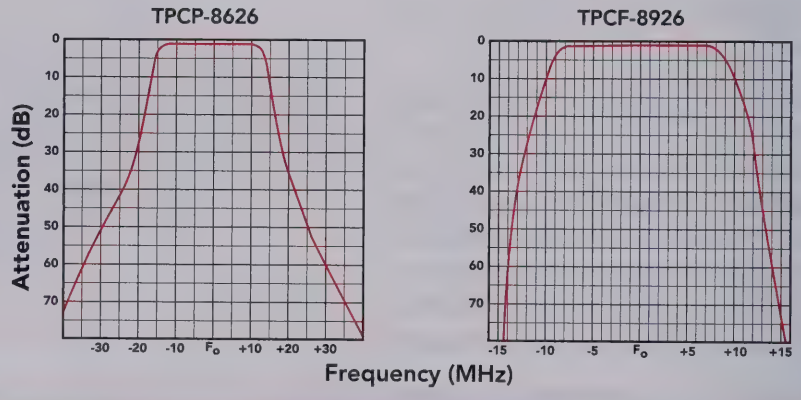
The TPCP-8626 and TPCF-8926 Combline Preselector filters are specially designed for use in 800 MHz master receive systems, allowing system designers to accommodate multiple systems while ensuring rejection of external noise sources. These preselectors and sideband filters provide maximum desense protection for receiver front ends when installed between the multicoupler or transmitter and antenna.

Combline filters feature "sharp skirt" selectivity with very low insertion loss (see below). Each filter is factory tuned and tested on customer supplied frequencies prior to shipment. The 8626/8926 filter series is available with pass bandwidths of 10, 15, and 20 MHz, and each unit consists of a series of 6 resonators in a compact 13" x 2" x 4.5" package. These filters are typically supplied on a 19" panel for rack mounting, and other options are available on request.



TPCP-8626

TYPICAL FILTER RESPONSE



SPECIFICATIONS	TPCP-8626	TPCP-8626B	TPCF-8926	TPCF-8926B
Frequency range (MHz)	806-821 MHz	824-849 MHz	870-890 MHz	870-890 MHz
Bandpass (typ)	15 MHz	10 MHz	20 MHz	10 MHz
Attenuation (+/- 45 from Fc)	85 dB			
Insertion loss (typ)	0.35 dB			
Power input (max)	N/A	N/A	500 watts	500 watts
Impedance / VSWR (max)	50 ohms / 1.25:1			
Temperature range	-30 to +60°C			
Number of cavities	6			
Connectors	N Female			
Dimensions (HWD) in (cm)	3.5 x 19 x 5 (8.9 x 48.3 x 12.7)			
Mounting	19" rack mount			
Finish	Clear alodine			
Net weight lb. (kg)	4 (1.8)			
Shipping weight lb. (kg)	8 (3.6)			

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TWDS-2024 Rev. 10/12

3 POWER MONITORING

Broadband Wattmeters

Telewave Broadband Wattmeters are known worldwide for quality, durability, and convenience. A single meter covers 2-200 MHz or 20-1000 MHz and 1-500 watts with no plug-in elements or band switching.

Power Monitors

RF power monitors produce a calibrated DC voltage proportional to an RF signal between 30 and 960 MHz. They are available as single and dual-direction devices with very low insertion loss.

Alarm Panels

Power monitoring and alarm panels continuously monitor the output of up to 12 transmitters and 2 antennas. Multiple measurements are switch selectable including VSWR and FWD/REV power. Relay contact closures indicate out of range conditions.

MODEL 44L1, L1P
BROADBAND RF WATTMETER

FEATURES

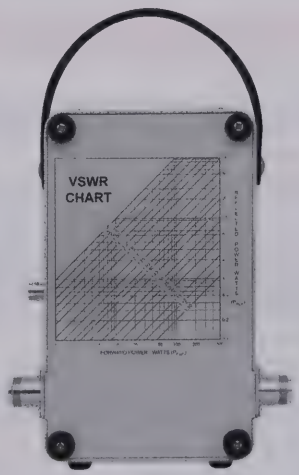
- REQUIRES NO ELEMENTS OR "SLUGS"
- NO BAND SWITCHING
- MEASURES 1 TO 500 WATTS
- 5 POWER RANGES
- 5 WATT FULL SCALE RANGE
- COVERS 2 - 200 MHz
- MEASURES FORWARD AND REFLECTED POWER
- -40 dB RF SAMPLING PORT
- SHOCK-MOUNTED METER
- LOW TEMPERATURE OPERATION
- QUICK-CHANGE CONNECTORS
- LIGHT WEIGHT: 3 LBS

MODEL 44L1P

The Telewave Model 44L1/L1P RF Wattmeter is a compact, versatile instrument used for direct measurement of forward and reflected RF power in a coaxial transmission line under any load conditions. Wide band capability and dynamic range allows operation without elements, inserts, or bandswitching.

The 20 microamp taut-band meter movement is shock mounted in a rugged, diecast housing, making this instrument ideal for mobile radio installation in aircraft or vehicles, as well as base stations.

Model 44L1P includes an RF sampling port, with an output 40 dB below the total transmission line level, for frequency measurement, signal injection, or spectral analysis.



BACK

CARRY CASE (OPTIONAL)

MODEL 44L1, L1P

This wideband instrument covers 2 to 200 MHz with a power range of 1 to 500 watts. The meter movement can be turned off for protection when not in use. A leather carrying strap is provided for easy portability. The use of a taut-band meter movement allows operation in cold temperatures.

The RF sample port on Model 44L1P samples a low level of RF power as it passes through the instrument. This bi-directional port is accessed via a BNC connector located on the side of the meter. It allows injection of a signal into the device under test, or can be used for spectrum analysis and frequency measurements without affecting operation of the meter.

The Model 44L1/L1P utilizes a set of precision directional detectors which sample forward and reverse CW power flow in a specially engineered section of transmission line. The sampled current is scaled to drive the 20 µA taut band meter. Forward and reflected power can be directly measured by rotating the FWD-REV switch. VSWR (Voltage Standing Wave Ratio) is easily determined by comparing these measurements and using the convenient chart on the back of the instrument.

Five power scales are provided. The 500 watt scale will test most high powered transmitters, while the 5 watt scale makes it simple to tune low powered portables. The excellent stability of this unit and the ability to switch it from one power range to another to check the calibration eliminates the need for a secondary standard to verify calibration.

SPECIFICATIONS		
Frequency range		2-200 MHz
Full scale power ranges		5, 15, 50, 150 and 500 watts
Impedance, primary line		50 ohms nominal
VSWR (max)		1.1:1
Accuracy (at 80% of full scale)		+/- 7% with N connectors only
RF sampling port (44L1P)		-40 dB +/-2 dB below total power (forward + reverse)
Connectors (input/output) (Quick-Change standard)		N Female standard UHF, DIN, TNC, BNC optional
Sample port		BNC Female
Dimensions (HWD)	in.	6.625 x 4 x 3.25
	mm	168.3 x 101.6 x 82.6
Weight lbs (kg)		3 (1.36)

All specifications subject to change without notice

MODEL 44A, AP
BROADBAND RF WATTMETER

FEATURES

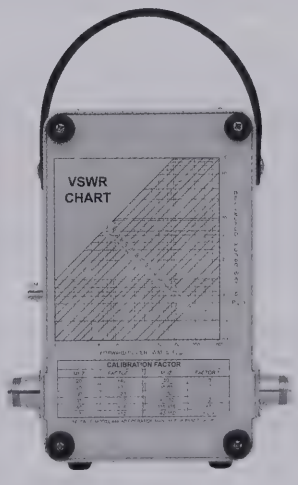
- REQUIRES NO ELEMENTS OR "SLUGS"
- NO BAND SWITCHING
- MEASURES 1 TO 500 WATTS
- 5 POWER RANGES
- 5 WATT FULL SCALE RANGE
- COVERS 20 - 1000 MHz
- MEASURES FORWARD AND REFLECTED POWER
- -40 dB RF SAMPLING PORT
- SHOCK-MOUNTED METER
- LOW TEMPERATURE OPERATION
- QUICK-CHANGE CONNECTORS
- LIGHT WEIGHT: 3 LBS

The Telewave Model 44A/AP RF Wattmeter is a compact, versatile instrument used for direct measurement of forward and reflected RF power in a coaxial transmission line under any load conditions. Wide band capability and dynamic range allows operation without elements, inserts, or bandswitching.

The 20 microamp taut-band meter movement is shock mounted in a rugged, diecast housing, making this instrument ideal for mobile radio installation in aircraft or vehicles, as well as base stations.

Model 44AP includes an RF sampling port, with an output 40 dB below the total transmission line level, for frequency measurement, signal injection, or spectral analysis.

MODEL 44AP



BACK

CARRY CASE (OPTIONAL)

MODEL 44A, AP

This wideband instrument covers 20 to 1000 MHz with a power range of 1 to 500 watts. The meter movement can be turned off for protection when not in use. A leather carrying strap is provided for easy portability. The use of a taut-band meter movement allows operation in cold temperatures.

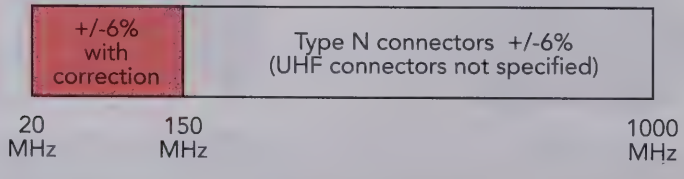
The RF sample port on Model 44AP samples a low level of RF power as it passes through the instrument. This bi-directional port is accessed via a BNC connector located on the side of the meter. It allows injection of a signal into the device under test, or can be used for spectrum analysis and frequency measurements without affecting operation of the meter.

The Model 44A/AP utilizes a set of precision directional detectors which sample forward and reverse CW power flow in a specially engineered section of transmission line. The sampled current is scaled to drive the 20 µA taut band meter. Forward and reflected power can be directly measured by rotating the FWD-REV switch. VSWR (Voltage Standing Wave Ratio) is easily determined by comparing these measurements and using the convenient chart on the back of the instrument.

Five power scales are provided. The 500 watt scale will test most high powered transmitters, while the 5 watt scale makes it simple to tune low powered portables. The excellent stability of this unit and the ability to switch it from one power range to another to check the calibration eliminates the need for a secondary standard to verify calibration.

SPECIFICATIONS	
Frequency range	20-1000 MHz
Full scale power ranges	5, 15, 50, 150 and 500 watts
Impedance, primary line	50 ohms nominal
VSWR (max)	1.1:1
RF sampling port (44AP)	-40 dB +/-2 dB below total power (forward + reverse)
Connectors (input/output) (Quick-Change standard)	N Female standard UHF, DIN, TNC, BNC optional
Sample port	BNC-female
Dimensions (HWD) in.	6.625 x 4 x 3.25
mm	168.3 x 101.6 x 82.6
Weight lbs (kg)	3 (1.36)

METER ACCURACY



All specifications subject to change without notice

RF POWER MONITORS

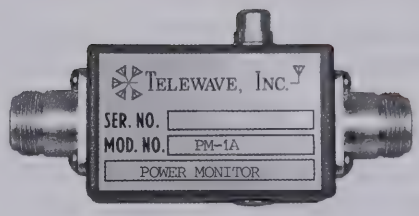
PM-1A, PM-2A SERIES

Telewave RF Power Monitors are single or dual-direction devices which produce a DC voltage proportional to an RF signal between 30 and 960 MHz, depending on model. These devices exhibit extremely low insertion loss, and are designed to be placed in the transmission line permanently, allowing continuous monitoring of forward and reflected power.

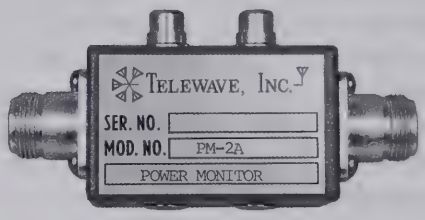
Each power monitor is used for one transmitter within a specified bandwidth. Voltage trimmers allow each unit to be quickly recalibrated for a new frequency within the same band. One or two RCA connectors provide access to the proportional DC output, which is coupled to the meter panel with a simple shielded audio-type cable.

Standard RF connectors are N Female. Any combination of N, SMA, or UHF, Male or Female are available on request.

Note: Center frequency or desired band coverage must be specified with order.



PM-1A



PM-2A

MODEL	TYPE	FREQUENCY	BANDWIDTH*
PM-1A-50	Single Direction	30-88 MHz	20 MHz
PM-1A-90	Single Direction	87.5-108 MHz	20 MHz
PM-1A-150	Single Direction	118-230 MHz	50 MHz
PM-1A-300	Single Direction	200-400 MHz	50 MHz
PM-1A-450	Single Direction	380-512 MHz	50 MHz
PM-1A-760	Single Direction	700-869 MHz	50 MHz
PM-1A-900	Single Direction	806-960 MHz	50 MHz
PM-2A-50	Dual Direction	30-88 MHz	20 MHz
PM-2A-90	Dual Direction	87.5-108 MHz	20 MHz
PM-2A-150	Dual Direction	118-230 MHz	50 MHz
PM-2A-300	Dual Direction	200-400 MHz	50 MHz
PM-2A-450	Dual Direction	380-512 MHz	50 MHz
PM-2A-760	Dual Direction	700-869 MHz	50 MHz
PM-2A-900	Dual Direction	806-960 MHz	50 MHz

SPECIFICATIONS	
Input power range	5-1000 watts
Impedance (typ.)	50 ohms
VSWR (max)	1.1:1
Insertion loss (typ)	0.1 dB
Dimensions (HWD) in. (cm)	1.375 x 2.25 x 1.25 (3.5 x 5.7 x 3.2)
Weight lb. (kg)	0.5 (0.2)
RF connectors	Any combination of N, SMA, or UHF Male/Female (specify types)
DC connectors	RCA-F standard, BNC-F or SMA (optional)

*Bandwidth is the approximate maximum range over which a useful range of voltages are available without retuning.

PM1C1S

RF POWER MONITOR / ALARM PANEL

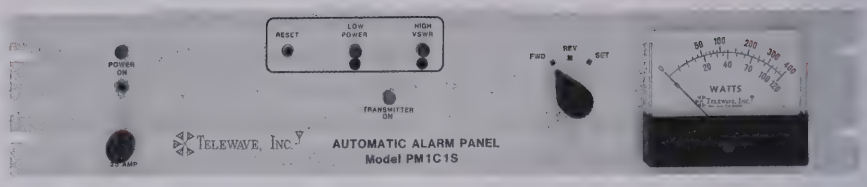
The Telewave PM1C1S is a single-channel, single antenna automatic alarm panel for low transmit power and high VSWR, featuring "true VSWR" circuitry and a built-in power monitor. The 2RU panel (3.5" x 19") mounts in any standard rack or inside most base station cabinets, and can be powered directly from 120 VAC or 12 VDC.

Whenever a low transmitter power condition is sensed by the PM1C1S, a latched relay closure occurs and a red light on the front panel turns on. Both normally-open and normally-closed relay contacts are provided.

A high VSWR condition is indicated by a second latched relay and light. These contacts can be used to remotely activate light, speakers, or other alarm systems. The relays and lights are reset by means of a front panel RESET button.

The panel also operates as an inline power monitor, measuring both forward and reverse RF power, with readings displayed on a 3.5-inch meter. A PM-2A power monitor for the appropriate frequency band is included, attached to the rear panel.

The PM1C1S has 2 meter scale options: 0-250 watts, or 0-400 watts. The meter scale and frequency band must be specified with the order.



FREQUENCY RANGE	BANDWIDTH
30-88 MHz	20 MHz
87.5-108 MHz	20 MHz
118-512 MHz	50 MHz
760-960 MHz	40 MHz

The frequency range is determined by the integrated power monitor. Bandwidth is the approximate maximum range over which a useful range of voltages are available without retuning.

SPECIFICATIONS		
Power scales	FWD	0-250 watts or 0-400 watts
	REV	0-25 watts or 0-120 watts
VSWR alarm range		2.0:1 +25% / -10%
Low power alarm range		5 watts to full scale
Delay timing range		0.1 to 1 second
Relay contacts, closure		N/O and N/C
Relay contacts, ratings		3A - AC or DC
Temperature range		-20°C to +60°C
Power requirements		120 VAC / 4 W or +12 VDC / 2 W
Dimensions (HWD) in. (cm)		3.5 x 19 x 4 (8.9 x 48.3 x 10.2)
Weight lbs (kg)		3.5 (1.6)

All specifications subject to change without notice

PM5C1S

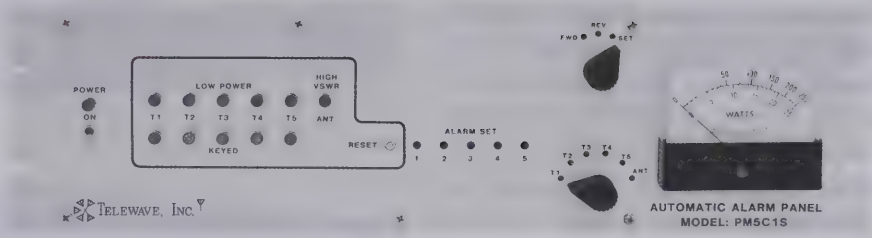
RF POWER MONITOR / ALARM PANEL

The Telewave PM5C1S is an automatic alarm panel featuring "true VSWR" circuitry. With optional PM-1A or PM-2A power monitors, this panel monitors the power output of up to 5 transmitters for low power, and provides a high VSWR alarm for one antenna. The 3RU (5.25" x 19") panel mounts in any standard rack or inside most base station cabinets, and can be powered directly from 120VAC or 12VDC.

Whenever a low transmitter power condition is sensed by the PM5C1S on one of the five channels, a latched relay closure occurs for the appropriate channel and a red light turns on at the front of the panel. Normally open and normally-closed relay contacts are provided for each individual channel.

A high antenna VSWR condition is accurately sensed at all power levels and indicated by a sixth latched relay and light. These contacts can be used to remotely activate lights, speakers, or other alarm systems. The relays and lights are reset by means of a front panel RESET button or by momentarily grounding the RESET input connection located on the rear of the unit.

The panel also operates as an inline power monitor, measuring both forward and reverse RF power of up to five transmitters plus a sixth channel for single antenna VSWR, with all readings displayed on a 3.5-inch meter. Up to 6 power monitors (not included) for the appropriate frequency band are required.



The PM5C1S has 2 meter scale options: 0-250 watts, or 0-400 watts. The meter scale must be specified with the order.

FREQUENCY RANGE	BANDWIDTH
30-88 MHz	20 MHz
87.5-108 MHz	20 MHz
118-512 MHz	50 MHz
760-960 MHz	40 MHz

The frequency range is determined by the associated power monitors. Bandwidth is the approximate maximum range over which a useful range of voltages are available without retuning.

SPECIFICATIONS		
Power scales	FWD	0-250 watts or 0-400 watts
	REV	0-25 watts or 0-120 watts
VSWR alarm range		2.0:1 +25% / -10%
Low power alarm range		5 watts to full scale
Delay timing range		0.1 to 1 second
Relay contacts, closure		N/O and N/C
Relay contacts, ratings		3A - AC or DC
Temperature range		-20°C to +60°C
Power requirements		120 VAC / 8 W or +12 VDC / 3.5 W
Dimensions (HWD) in. (cm)		5.25 x 19 x 3.25 (13.3 x 48.3 x 8.3)
Weight lbs (kg)		4 (1.8)

PM10C2S1C
RF POWER MONITOR PANEL

The Telewave PM10C2S1C is a 1RU, compact RF power monitor panel, capable of monitoring up to ten transmitters and two antennas with optional PM-1A or PM-2A power monitors. This unit fits in 1.75" x 19", preserving valuable rack space for other equipment.

The PM10C2S1C greatly simplifies procedures for monitoring the output of transmitters, and the condition of transmission lines and antennas. Ten remote transmitter keying switches are provided, and a simple two wire hook-up (RF shielded or twisted pair) from the keying circuit of each transmitter to the screw terminals located on the rear of the wattmeter panel completes the connections. A floating ground required by certain transmitters is provided for each keyer.

VSWR calculations can be made when appropriate dual-direction power monitors are installed. The FWD / REV switch on the front panel quickly displays forward and reflected power for the transmitter or antenna circuits. Up to 10 power monitors (not included) for the appropriate frequency band(s) are required.

The power monitor panel is not frequency dependent, and power monitors for multiple bands can be used with a single panel. No power supply is required for the meter panel.

FREQUENCY RANGE	BANDWIDTH
30-88 MHz	20 MHz
87.5-108 MHz	20 MHz
118-512 MHz	50 MHz
760-960 MHz	40 MHz

The frequency range is determined by the associated power monitors. Bandwidth is the approximate maximum range over which a useful range of voltages are available without retuning.

SPECIFICATIONS		
Power scales	FWD	0-400 watts
	REV	0-120 watts
Monitor inputs		12 FWD, 12 REV
Input connectors		RCA-Female
Temperature range		-20°C to +60°C
Dimensions (HWD) in. (cm)		1.75 x 19 x 5 (4.5 x 48.3 x 12.7)
Weight lbs (kg)		2 (0.9)

All specifications subject to change without notice

TWDS-3016 Rev. 2/10

4 ISOLATORS AND LOADS

4 ISOLATORS AND LOADS

Coaxial Loads

RF loads provide stable constant impedance termination for receiver panels and transmitters up to 300 watts. Dry loads can be operated in any position, and offer extremely low VSWR and Quick-Change connectors.

Ferrite Isolators

Telewave isolators provide isolation between transmitters by controlling the directional flow of RF energy. Power which is coupled into an antenna system from a nearby transmitter can be circulated into a load before it contributes to intermodulation.

High Power Isolators

High power isolators handle up to 400 watts of power. These rugged devices are custom-built for each application and extensively tested in the Telewave manufacturing plant.

Intermodulation Suppression

IM Panels are self-contained devices which generally include a single or dual isolator, low-pass filter, and output termination load. Each panel is designed to provide plug-and-play installation and can solve many difficult interference problems.

TWL-01, 35, 60
COAXIAL RF TERMINATIONS

Telewave compact coaxial loads offer extremely low VSWR. All loads are machined to withstand any bench or field use, and their power rating provides substantial overload protection. Unlike oil-filled loads, these dry coaxial loads can be operated in any position. Connectors have a silver-plated center conductor, except TWL-01 which uses a gold-plated pin.

TWL-01 is designed as a port termination for receiver splitters with N, SMA, UHF, or BNC female outputs. TWL-35 and TWL-60 feature recessed male connectors for reduced size and ease of use. Applications include hybrids, isolators, power monitors, wattmeters, and coaxial port terminations.

FEATURES

- EXTREMELY LOW VSWR
- CW POWER RATINGS TO 60 WATTS
- DRY LOAD
- BROAD FREQUENCY RANGE
- RUGGED CONSTRUCTION
- N, BNC, OR UHF MALE CONNECTOR (Specify connector type)

TWL-60

TWL-35

TWL-01

SPECIFICATIONS	TWL-01*	TWL-35	TWL-60
Frequency range	0-2500 MHz	0-1000 MHz	0-1000 MHz
Maximum avg. CW power	250 mW	35 W	60 W
Max VSWR (N connector)	1.22:1	1.05:1	1.05:1
Impedance (nom.)	50 ohms (nominal)		
Temperature rating	100% of rated power at 40°C • 50% of rated power at 95°C		
50% overload rating	2 Minutes		
Connectors	N / SMA / UHF / BNC Male	N or UHF Male	N or UHF Male
Dimensions (dia. x H) in (cm)	0.8 x 0.97 (2.0 x 2.5)	1.6 x 1.4 (4.1 x 3.6)	1.6 x 2.375 (4.1 x 6.0)
Weight lb. (kg)	0.07 (0.03)	0.25 (0.11)	0.5 (0.2)

*Used to terminate unused ports on receiver splitters and panels.

TELEWAVE, INC.

0 - 2500 MHz

TWL-50	50 W	0-2500 MHz
TWL-75	75 W	0-2500 MHz
TWL-100	100 W	0-2500 MHz
TWL-100HS	100 W	0-2500 MHz

TWL-50, 75, 100, 100HS
COAXIAL RF TERMINATIONS

Telewave Coaxial Loads feature extremely low VSWR and excellent stability. Applications include hybrids, isolators, power monitors, wattmeters, and coax line terminations.

Telewave loads are custom machined to withstand bench or field use. The conservative power rating provides substantial overload protection. Unlike liquid dielectric loads, Telewave dry coaxial terminations can be operated in any position.

All connectors have gold-plated center pins for maximum conductivity. Quick-Change connectors are standard on these loads, allowing easy configuration for any application. Specify connector type(s) when ordering.

For added flexibility, straight or elbow-type male-male adapters are available.

FEATURES

- EXTREMELY LOW VSWR
- CW POWER RATINGS TO 150 WATTS
- DRY DIELECTRIC
- BROAD FREQUENCY RANGE
- RUGGED CONSTRUCTION
- QUICK-CHANGE CONNECTORS

TWL-50

TWL-75

TWL-100

TWL-100HS

COMMON SPECIFICATIONS	
Frequency range	0 - 2500 MHz
Nominal impedance	50 ohms
Temperature rating	40°C max ambient - 100% of rated power 95°C max ambient - 50% of rated power
50% overload rating	2 minutes

MODEL	TWL-50	TWL-75	TWL-100	TWL-100HS
Maximum CW avg power	50 watts	75 watts	100 watts	100 watts
Max VSWR (N connector)	1.1:1	1.05:1	1.05:1	1.05:1
Dimensions (H x dia.) in.	6 x 1.75	8 x 2.25	7.25 x 3.375	7 H x 2.75 W x 2.75 D
(incl. connector) cm	15.2 x 4.5	20.3 x 5.7	18.4 x 8.6	17.8 x 7 x 7
Weight lb. (kg)	1 (0.5)	2.1 (1)	4 (1.8)	2.7 (1.2)
Connectors	Quick-Change N Female (std.) UHF, TNC, BNC, 7-16 DIN (opt.)		Quick-Change N Male (std.) UHF, TNC, BNC, 7-16 DIN (opt.)	

All specifications subject to change without notice

TWDS-3005 Rev. 10/06

TWL-150, TWL-300
HIGH POWER TERMINATIONS

The Telewave TWL-150 Bench Load is ideal as a general purpose medium power termination. It is perfectly suited for terminating the Model 44A Broadband wattmeter, or any other application requiring a very low VSWR, 50 ohm termination. The carry handle and rugged construction allow convenient field use.

The Telewave TWL-300 Bench Load is our highest power standard termination. This load is designed for testing high power amplifiers, or applications requiring longer duty cycles.

Telewave coaxial loads feature extremely low VSWR and excellent stability. Applications include hybrids, isolators, power monitors, wattmeters, and coax line terminations.

Telewave loads are custom machined to withstand bench or field use. The conservative power rating provides substantial overload protection. Unlike liquid dielectric loads, Telewave dry coaxial terminations can be operated in any position.

All connectors have gold-plated center pins for maximum conductivity. Quick-Change connectors are standard on these loads, allowing easy configuration for any application. Specify connector type(s) when ordering.

For added flexibility, straight or elbow-type male-male adapters are available.

TWL-150

TWL-300

SPECIFICATIONS	TWL-150	TWL-300
Frequency range	0 - 2500 MHz	0 - 1000 MHz
Power input (max)	150 watts	300 watts
Impedance (nom)	50 ohms	
VSWR (max)	1.05:1	1.25:1
Return loss (typ.)	32 dB	18 dB
Temperature rating	100% of rated power at 40°C • 50% of rated power at 95°C	
50% overload rating	2 Minutes	
Connector	Quick-Change N Female (std.), UHF, TNC, BNC, 7-16 DIN	
Dimensions (HWD) in. (cm)	6.5 x 3.5 x 6.5 (16.5 x 8.9 x 16.5)	8.1 x 2.5 x 9.5 (20.6 x 6.4 x 24.1)
Footprint in. (cm)	7 x 4 (17.8 x 10.2)	9.5 x 4.6 (24.1 x 11.7)
Weight lb. (kg)	4.8 (2.2)	13 (5.9)
Finish	High Temp Black	

T-1030 / T-1060
FERRITE ISOLATORS

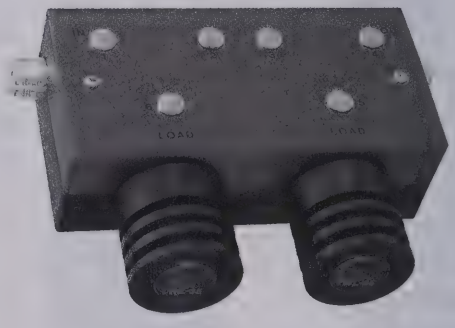
Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 50 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 3 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-1030 SINGLE ISOLATOR

CAVITY-MOUNT ISOLATOR

T-1060 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS			T-1030	T-1060
Frequency band	66-108 MHz	Isolator type	Single	Dual
Tuning range (typ.)	± 3 MHz	Isolation (typ. / min)	35 dB / 30 dB	70 dB / 60 dB
Input power	50 watts	Insertion loss (typ.)	0.65 dB	1.0 dB
VSWR (typ.)	1.25:1	Load(s) included	(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions in. (incl. loads)	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female	cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30˚C to +60˚C	Weight lb. (kg)	1.5 (1.4)	6 (2.7)

All specifications subject to change without notice

TWDS-4001 Rev. 8/09

T-1530 / T-1560
FERRITE ISOLATORS

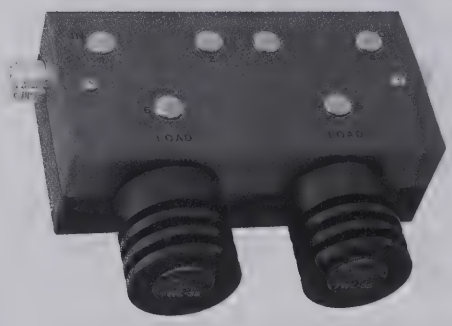
Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 100 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 4 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-1530 SINGLE ISOLATOR

CAVITY-MOUNT ISOLATOR

T-1560 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-1530	T-1560
Frequency band	118-174 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 4 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	100 watts	Insertion loss (typ.)		0.4 dB	0.8 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30˚C to +60˚C	Weight lb. (kg)		3 (1.4)	6 (2.7)

T-1530M / T-1560M

MEDIUM POWER VHF ISOLATORS

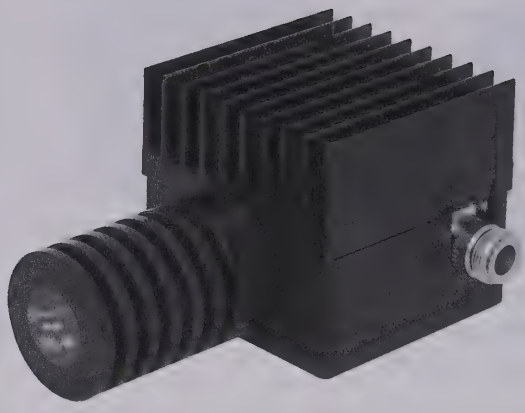
Telewave T-1530M and T-1560M Medium Power Isolators protect transmitters from reflected power, and provide maximum intermodulation suppression. A dual-stage unit can provide as much as 70 dB isolation for adjacent channel suppression. The low loss characteristic of the Telewave design insures maximum power transfer to the antenna system.

All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 115 watts of continuous power, with several different load options. One or two removeable 60 watt loads are included in the basic configuration. Higher power load options can be specified with an order.

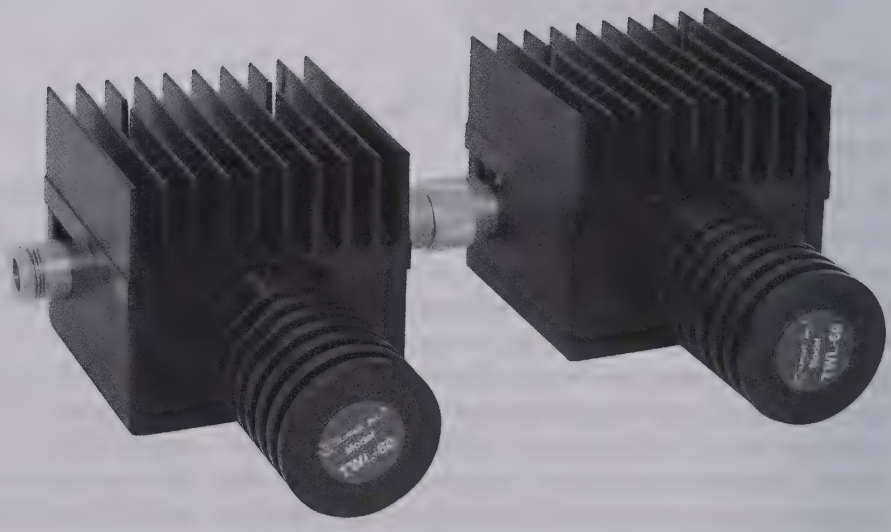
Telewave isolators are magnetically compensated to allow mounting on any surface without significant detuning. Circulation direction may be specified for special mounting situations. To prevent radiation of harmonics, a cavity or harmonic filter should be placed between the isolator and the antenna.

NOTE: ISOLATORS ARE FACTORY TUNABLE ONLY, AND ARE BUILT FOR A SPECIFIC FREQUENCY.

ISOLATION DATA IS MEASURED WITH POWER APPLIED.



T-1530M SINGLE ISOLATOR



T-1560M DUAL ISOLATOR

SPECIFICATIONS				T-1530M	T-1560M
Frequency band	148-174 MHz	Isolator type		Single	Dual
Input power (continuous)	115 watts	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
VSWR (typ.)	1.3:1	Insertion loss (typ.)		0.5 dB	0.9 dB
Impedance	50 ohms	Load(s) included		(1) 60 W	(2) 60 W
Connectors	N Female	Dimensions (incl. loads)	in.	4 x 5.4 x 2.75	8.9 x 5.4 x 2.75
Temperature range	-30˚C to +60˚C		cm	10.2 x 13.7 x 7	22.6 x 13.7 x 7
		Weight lb. (kg)		3 (1.4)	6 (2.7)

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All specifications subject to change without notice

TWDS-4029 Rev. 3/13

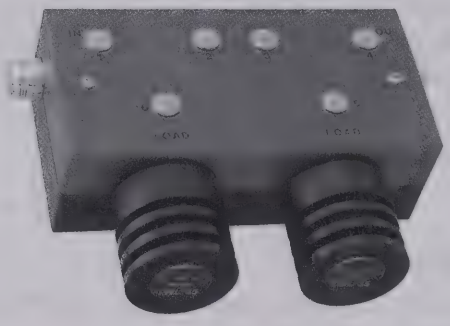
T-2230 / T-2260
FERRITE ISOLATORS

Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 100 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 5 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-2230 SINGLE ISOLATOR

T-2260 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-2230	T-2260
Frequency band	216-252 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 5 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	100 watts	Insertion loss (typ.)		0.4 dB	0.8 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30°C to +60°C	Weight lb. (kg)		1.5 (1.4)	6 (2.7)

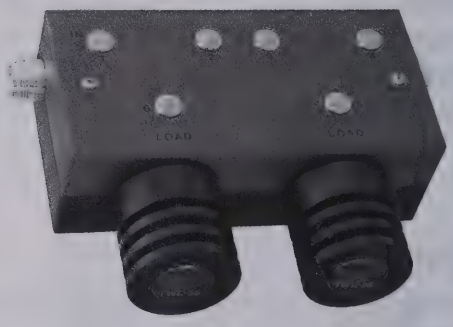
T-3530 / T-3560
FERRITE ISOLATORS

Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 150 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 5 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-3530 SINGLE ISOLATOR

T-3560 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-3530	T-3560
Frequency band	300-400 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 5 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	150 watts	Insertion loss (typ.)		0.4 dB	0.8 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30˚C to +60˚C	Weight lb. (kg)		3 (1.4)	6 (2.7)

All specifications subject to change without notice

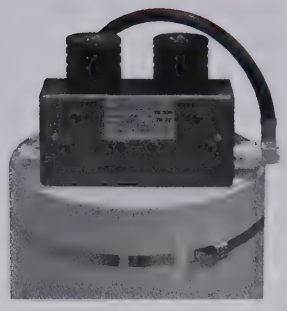
TWDS-4013 Rev. 8/09

T-4530 / T-4560
FERRITE ISOLATORS

Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 150 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 5 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

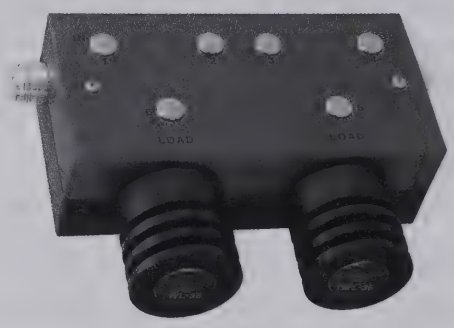
NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-4530 SINGLE ISOLATOR



CAVITY-MOUNT ISOLATOR

T-4560 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-4530	T-4560
Frequency band	400-512 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 5 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	150 watts	Insertion loss (typ.)		0.4 dB	0.7 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30˚C to +60˚C	Weight lb. (kg)		3 (1.4)	6 (2.7)

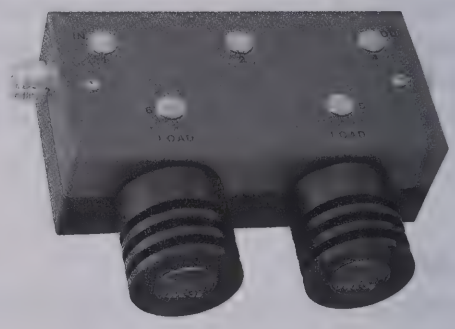
T-7530 / T-7560
FERRITE ISOLATORS

Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 150 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 6 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*

T-7530 SINGLE ISOLATOR

T-7560 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

When RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-7530	T-7560
Frequency band	700-806 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 6 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	150 watts	Insertion loss (typ.)		0.4 dB	0.8 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30˚C to +60˚C	Weight lb. (kg)		3 (1.4)	6 (2.7)

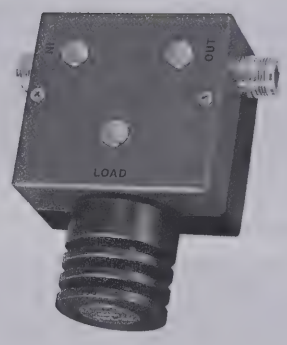
All specifications subject to change without notice

TWDS-4021 Rev. 8/09

T-8630 / T-8660
FERRITE ISOLATORS

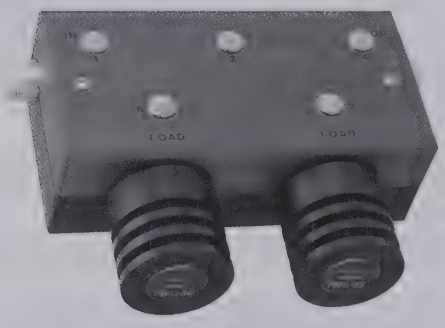
Telewave Single and Dual Ferrite Isolators prevent intermodulation, and protect transmitters from high VSWR or mistuned filtering devices by providing a constant 50 ohm impedance. All Telewave isolators are manufactured and tested in our own plant to the highest quality standards. These isolators handle up to 150 watts of power, with several different load options. All Telewave isolators include one or two removeable 35 watt loads in the basic configuration. Typical tuning range is up to ± 6 MHz from the original center frequency, and typical isolation is 35 dB for single, and 70 dB for dual.

NOTE: *Isolators have limited bandwidth and tuning range. Each isolator is manufactured for a specific range and tuned to a specific frequency. Please specify the exact desired operating frequency and special load requirements with the order.*



T-8630 SINGLE ISOLATOR

T-8660 DUAL ISOLATOR



BENEFITS

Under adverse conditions, the isolator performs several critical functions:

Broken Antenna, Damaged Cable, High VSWR

All of these conditions will cause large amounts of power to be reflected down the transmission line toward the transmitter. The circulatory property of the isolator will direct this energy to the load port, and protect the transmitter. The load on the isolator must be capable of handling full transmitter power. Age, water invasion, and incorrect cable length will also cause impedance changes. The tuned ports of the isolator provide a constant 50 ohm impedance for the transmitter to avoid overheating and oscillation.

Intermodulation

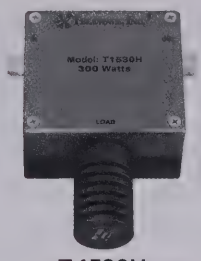
When in-band or out-of-band RF energy from a strong nearby signal source enters a transmitter via the antenna, mixing with the primary transmitter frequency often occurs, resulting in the radiation of new, undesired signals. The isolator antenna port reflects out-of-band energy back to the antenna. In-band energy enters the isolator, and is circulated to the output load. No energy from nearby transmitters enters the protected transmitter from the antenna, and intermodulation can be eliminated.

SPECIFICATIONS				T-8630	T-8660
Frequency band	806-960 MHz	Isolator type		Single	Dual
Tuning range (typ.)	± 6 MHz	Isolation (typ. / min)		35 dB / 30 dB	70 dB / 60 dB
Input power	150 watts	Insertion loss (typ.)		0.4 dB	0.8 dB
VSWR (typ.)	1.25:1	Load(s) included		(1) 35 W	(2) 35 W
Impedance	50 ohms	Dimensions (incl. loads)	in.	4.5 x 4 x 2	6.5 x 4.5 x 2
Connectors	N Female		cm	11.5 x 10 x 5	16.5 x 11.5 x 5
Temperature range	-30°C to +60°C	Weight lb. (kg)		3 (1.4)	6 (2.7)

HIGH POWER ISOLATORS

SINGLE AND DUAL STAGE TO 400 WATTS

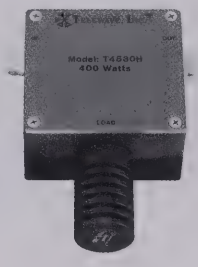
Telewave High Power Isolators provide maximum effectiveness in intermodulation suppression. A dual-stage unit can provide as much as 85 dB isolation for adjacent channel suppression, and better than 60 dB across the entire bandwidth. The low loss characteristic of the Telewave design insures maximum power transfer to the antenna system.



T-1530H

T-1560H

Telewave isolators are magnetically compensated to allow mounting on any surface without significant detuning. Circulation direction may be specified for special mounting situations. To prevent radiation of harmonics, a cavity or harmonic filter should be placed between the isolator and the antenna.



T-4530H

T-4560H

T-8660H

Telewave High Power Isolators are available in single or dual stage configurations from 148 to 960 MHz. Power capability of up to 400 watts is available, and many different termination options can be specified.

One or two removable 60 watt loads are supplied standard. Optional loads to 300 watts are available. Consult Telewave with load requirements, and special mounting or mechanical configurations.

NOTE: HIGH POWER ISOLATORS ARE NOT FIELD TUNABLE, AND ARE MANUFACTURED FOR A SPECIFIC FREQUENCY.

ISOLATION DATA IS MEASURED WITH POWER APPLIED.

SPECIFICATIONS		T-1530H	T-1560H	T-4530H	T-4560H	T-8660H
Isolator type		Single	Dual	Single	Dual	Dual
Frequency range (MHz)		148-174	148-174	440-475	440-475	806-960
Isolation (typ.)		35 dB	65 dB	35 dB	80 dB	70 dB
Isolation (min)		30 dB	55 dB	30 dB	60 dB	60 dB
Insertion loss (typ.)		0.6 dB	0.9 dB	0.5 dB	0.8 dB	0.8 dB
VSWR (typ.)				1.25:1		
Maximum power		300 W	300 W	400 W	400 W	300 W
Connectors				N Female		
Temperature				-30 to +60 °C		
Dimensions incl. loads	in.	6.75 x 5 x 2.625	9.75 x 6.75 x 2.75	6.5 x 5.25 x 2.5	9 x 6.5 x 2.5	6.5 x 5.25 x 2.75
	cm	17.1 x 12.7 x 6.7	24.8 x 17.1 x 7	16.5 x 13.3 x 6.4	22.9 x 16.5 x 6.4	16.5 x 13.3 x 7

All specifications subject to change without notice

TWDS-4026 Rev. 3/09

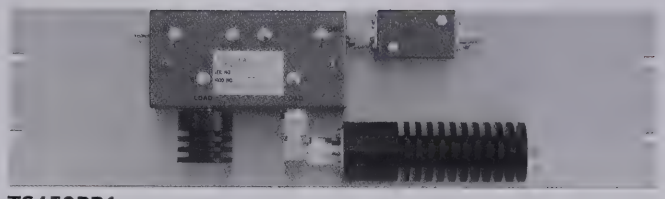
TS150, 220, 350, 450, 760, 900 SERIES
INTERMOD SUPPRESSION PANELS

Telewave Intermod Suppression Panels provide a simple, affordable, high-performance solution for cleaning up interference at congested radio sites, when a full combining system may not be cost-effective. In addition to controlling transmitter intermodulation, IM Panels also greatly reduce transmitter maintenance and expensive repairs by providing a constant 50 ohm load, protecting the transmitter from opens, shorts, or other faults in the antenna system.

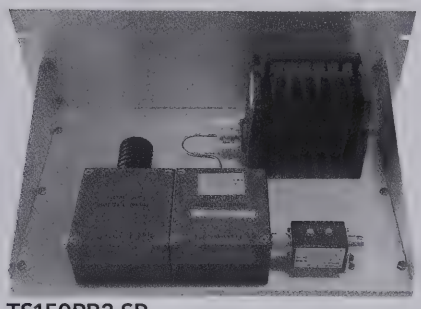
Telewave IM Panels do not rely on any cables or other lossy interconnections, other than to the transmit chain. Each standard or custom panel includes one or more isolators with appropriate terminations, and a low-pass filter.

Each panel is factory tuned to specific frequencies supplied with the order. All 100 and 150 watt units are field tunable by approximately ± 3-6 MHz depending on frequency, and include complete tuning instructions. No specialized equipment is required.

150 watt units ship with a 35 watt primary load, and a 50 watt termination on the antenna isolation (2nd) port. 300 and 400 watt units ship with a 100 watt second stage termination, and are not field tunable. Center frequency and load requirements must be specified when ordering. Contact Telewave if additional information or assistance is required.



TS450PB1



TS150PB2-SP

COMMON SPECIFICATIONS	
Tuning range (100-150 W units only)	± 3-6 MHz (depending on freq.)
Impedance (nom.)	50 ohms
VSWR (max)	1.3:1
Harmonic attenuation (min)	60 dB
Connectors	N Female

MODEL	FREQ. RANGE	INPUT POWER	ISOLATION (dB) TYP	ISOLATION (dB) MIN	INS. LOSS (dB) TYP	PANEL HEIGHT	LOAD POWER
TS150PA1	118-174	100 W	38	30	0.6	5.25 in.	50 W
TS150PB1	118-174	100 W	75	60	0.9	5.25 in.	50 W
TS150PA2	148-174	300 W	30	21	0.7	8.75 in.	100 W
TS150PB2	148-174	300 W	60	42	1.0	8.75 in.	100 W
TS220PA1	216-250	100 W	38	30	0.6	5.25 in.	50 W
TS220PB1	216-250	100 W	75	60	0.9	5.25 in.	50 W
TS350PA1	300-400	150 W	38	30	0.6	5.25 in.	50 W
TS350PB1	300-400	150 W	75	60	0.9	5.25 in.	50 W
TS450PA1	400-512	150 W	38	30	0.5	5.25 in.	50 W
TS450PB1	400-512	150 W	75	60	0.8	5.25 in.	50 W
TS450PA2	440-475	400 W	38	30	0.6	8.75 in.	100 W
TS450PB2	440-475	400 W	75	60	0.9	8.75 in.	100 W
TS760PA1	763-869	150 W	38	30	0.6	5.25 in.	50 W
TS760PB1	763-869	150 W	75	60	0.6	5.25 in.	50 W
TS760PB2	763-869	300 W	75	60	0.9	8.75 in.	100 W
TS900PA1	806-960	150 W	38	30	0.6	5.25 in.	50 W
TS900PB1	806-960	150 W	75	60	0.9	5.25 in.	50 W
TS900PB2	806-960	300 W	75	60	0.9	8.75 in.	100 W

THRP-1548, 4548, 7648, 8648

HIGH PERFORMANCE REPEATER PANEL

The Telewave High Performance Repeater Panel greatly improves the effective sensitivity and selectivity of a repeater receiver for extended mobile and portable coverage, and provides maximum intermodulation protection for the transmitter.

The THRP panel uses a dual isolator with a 50 watt termination on the second stage output, and a low pass filter for transmitter IM protection. This combination provides more than 60 dB of IM protection over a ±5 MHz bandwidth, and transmitter 2nd harmonic attenuation of over 50 dB.

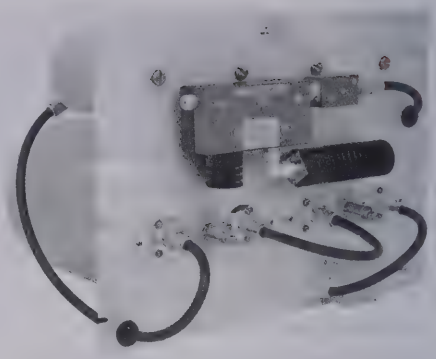
The duplexer utilizes four 4" cavities in a pass/reject configuration. This duplexer has only 1.8 dB insertion loss, and provides over 110 dB isolation. The receiver side of the duplexer is interconnected to two 8" high "Q" bandpass cavities, to form a narrow pass-band preselector.

The output of the preselector is coupled to one of two types of low-noise preamplifiers. The standard configuration uses a TLA series low-noise bipolar preamp. This preamp is recommended for areas that are prone to lightning damage or high ambient signal levels.

The optional TGA series preamps use a PHEMT amplifier for higher sensitivity. This preamp is recommended for sites with low existing RF noise levels.

The THRP series puts all this equipment on one 14" x 19" panel, pretuned and ready to install. The total price is less then if the equipment was purchased separately, and requires less rack space.

FREQUENCY RANGES	
THRP-1548	138 - 174 MHz
THRP-4548	400 - 512 MHz
THRP-7648	763 - 869 MHz
THRP-8648	806 - 960 MHz



THRP-7648 FRONT

THRP-7648 BACK

SPECIFICATIONS		PREAMP	Bipolar	PHEMT (opt.)
Frequency range	138-960 MHz	Gain - Antenna to RX	+8 to +20 dB	+8 to +15 dB
Frequency separation (min)	3 MHz	Noise figure (typ.)	2.5 dB	0.7 dB
Power input (continuous)	125 watts	3rd order intercp.	+35 dBm	+25 dBm
VSWR (max)	1.22:1	Input power	+12 to +24 VDC	+9 to +18 VDC
TX-RX isolation (typ.)	110 dB	Current (typ.)	170 mA	40 mA
Insertion loss TX to Antenna (typ.)	1.8 dB			
TX 2nd harmonic attn. (typ.)	50 dB			
Antenna to TX isolation (typ.)	75 dB at 5 MHz			
RX-TX isolation (typ.)	120 dB			
Temperature range	-30°C to +40°C			
Connector type	N Female			
Finish	Grained aluminum			
Dimensions (HWD) in. (cm)	14 x 19 x 12 (35.6 x 48.3 x 30.5)			
Net weight lb. (kg)	25 (11.4) (400-860 MHz)			

All specifications subject to change without notice

TWDS-4028 Rev. 10/13

5 CAVITIES AND FILTERS

Bandpass

Bandpass cavities allow a single frequency or a very narrow group of frequencies to reach a receiver, or leave a transmitter. All other frequencies are rejected by these filters.

Bandpass / Bandreject

Pass / Reject cavities offer a modified pass response for a narrow band of frequencies, and also provide a tunable notch which deepens the reject response at a particular frequency. This type of filter supports closer frequency spacing than a standard pass cavity.

Notch

Notch cavities reject a particular frequency or a narrow window of frequencies. These cavities have extremely low insertion loss and are very useful as standalone devices or in addition to passband filters.

Single / Dual / Triple

Multiple cavities provide a wider passband or reject band, or a steeper roll-off outside the pass or reject band. They also enable multiple-window filters which can pass or reject more than one group of frequencies within a band.

Lowpass / Highpass / Crystal

Low pass filters help to eliminate harmonics and spurs which may occur above the fundamental frequency of a transmitter. Highpass filters attenuate unwanted energy below the fundamental frequency, and are also used to protect receivers. Crystal filters provide extremely sharp response to protect receivers from closely-spaced transmitters.

TWPC-0310-1, 0410-1
BANDPASS CAVITIES

The Telewave TWPC-0310-1 and TWPC-0410-1 are 10" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

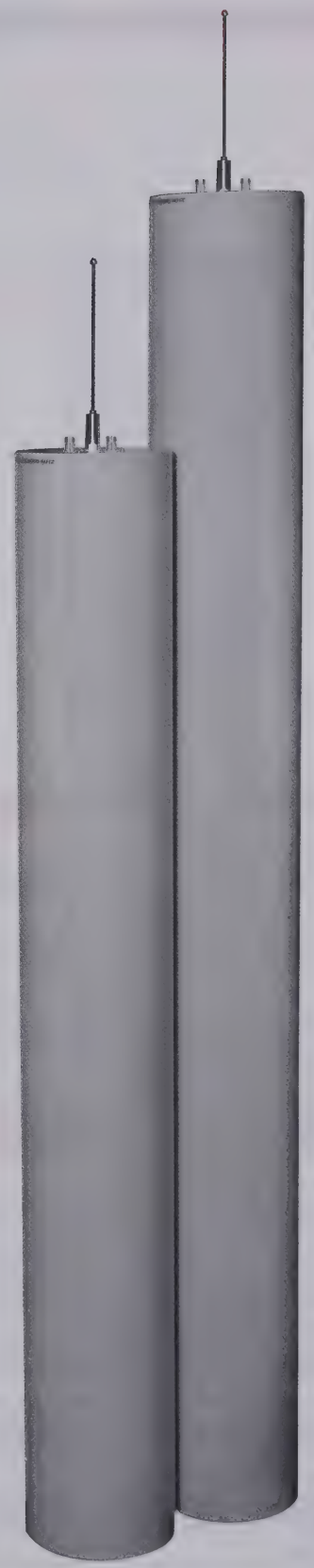
The TWPC-0310-1 covers 30–40 MHz, and the TWPC-0410-1 covers 40–50 MHz. The tuning range of these cavities is approximately ±2.5 MHz from center frequency as built. All cavities are tuned to specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, so that insertion loss can be easily set from 0.5 dB to 2 dB or more with corresponding increases in selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 0310 / 0410-2 dual and 0310 / 0410-3 triple cavity filters provide much greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Ground loop technology places the center pin of each coupling loop at DC ground potential.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.



TWPC-0310-1, 0410-1

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 - TWPC-0310

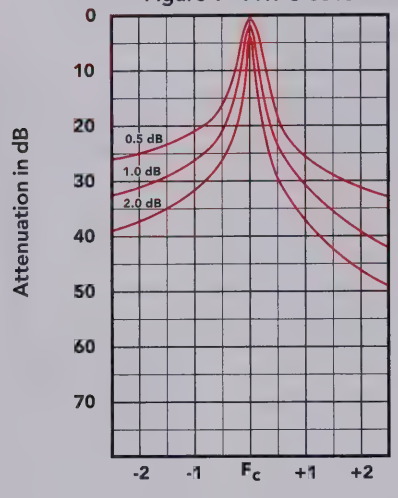
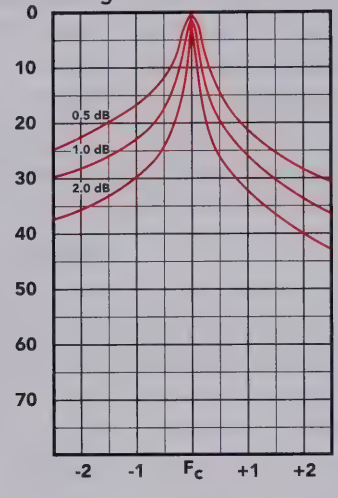


Figure 2 - TWPC-0410



Frequency (MHz)

MODEL	TWPC-0310	TWPC-0410
Frequency coverage	30-40 MHz	40-50 MHz
Tuning range from center frequency	± 2.5 MHz	± 2.5 MHz
Insertion loss (adjustable)	0.5 to 2.0 dB	0.5 to 2.0 dB
Attenuation	See figure 1	See figure 2
Cavity dimensions (Diam. x H) in. (cm)	10 x 88 (25 x 224)	10 x 72 (25 x 183)
Maximum dimensions with tuners extended in. (cm)	10 x 97 (25 x 246)	10 x 81 (25 x 206)
Net weight lb. (kg)	29 (13.2)	26 (11.8)
Shipping weight lb. (kg)	40 (18.2)	36 (16.3)
COMMON SPECIFICATIONS		
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

All specifications subject to change without notice

TWPC-0412-1, TWNC-0412-1

BANDPASS CAVITY, NOTCH CAVITY

The Telewave TWPC-0412-1 is a 12" diameter, ¼-wavelength high "Q" bandpass cavity filter with superior selectivity. Band-pass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

The TWNC-0412-1 is a 12" diameter, ¼-wavelength notch cavity with an adjustable coupling loop. These cavities reject a narrow band of frequencies, and are often used in conjunction with pass cavities in complex filtering designs. Notch cavities have very low loss outside the notch band, and Telewave can also "tilt" the notch response to move a notch very close to a pass frequency without adversely affecting the pass response.

The TWPC and TWNC-0412-1 cover 40-50 MHz. The tuning range of these cavities is approximately ±2.5 MHz from center frequency as built. All cavities are tuned to specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, so that pass cavity insertion loss can be easily set from 0.5 dB to 2 dB or more with corresponding increases in selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 0412-2 dual pass cavity filter provides greater selectivity.

Multiple cavities can also provide a wider passband or notch when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-0412-1, TWNC-0412-1

TYPICAL RESPONSE

Figure 1 - TWPC-0412-1

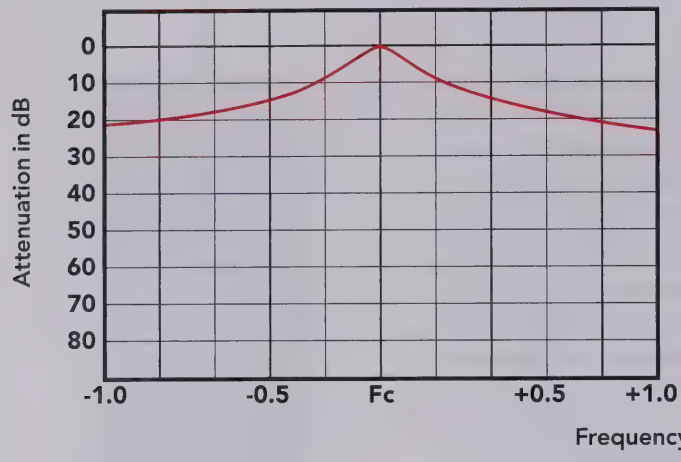
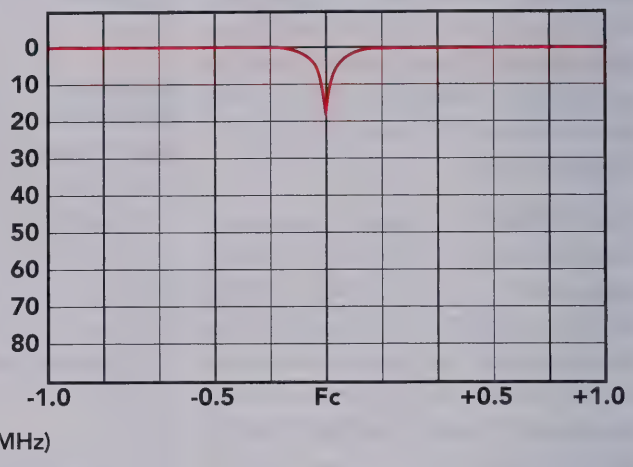


Figure 2 - TWNC-0412-1



Frequency (MHz)

SPECIFICATIONS	TWPC / TWNC-0412-1
Frequency coverage	40-50 MHz
Tuning range from center frequency	± 2.5 MHz
Insertion loss (adjustable on pass cavity)	0.5 to 2.0 dB (Notch cavity 0.2 dB max)
Attenuation at 1 dB insertion loss	See Figure 1, 2
Nominal impedance	50 ohms
VSWR at resonance (max)	1.5:1
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts
Temperature range	-30°C to +70°C
Cavity electrical length	1/4 wavelength
Outer conductor, end plates	6061-T6 aluminum
Inner conductor, coupling loops	Silver plated copper
Tuning rod	Invar
Contactors, fingerstock	Beryllium copper
Cavity dimensions (Diam. x H) in. (cm)	12 x 72 (30 x 183)
Maximum dimensions with tuners extended in. (cm)	12 x 81 (30 x 206)
Connectors	N or UHF female (opt.)
Finish	Gray acrylic enamel
Net weight lb. (kg)	27 (68.6)
Shipping weight lb. (kg)	38 (96.5)

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1005-1,2
BANDPASS CAVITIES

The Telewave TWPC-1005-1, and 1005-2 are 5" diameter, ¼-wavelength, high "Q" bandpass cavity filter with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1005 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

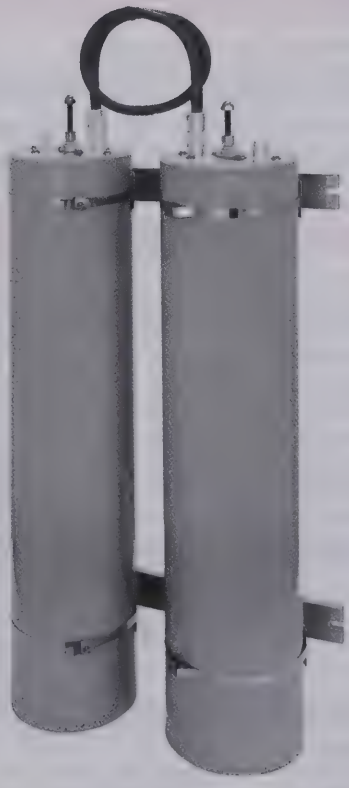
These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TWPC-1005-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1005-1



TWPC-1005-2

TWPC-1005-1,2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWPC-1005-1 SINGLE

Figure 2 TWPC-1005-2 DUAL

MODEL	TWPC-1005-1	TWPC-1005-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation at 1 db insertion loss	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 48 (13 x 123)	5.25 x 19 x 48 (13 x 48 x 123)
Net weight lb. (kg)	5 (2.3)	12 (5.5)
Shipping weight lb. (kg)	8 (3.6)	16 (7.3
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 36 (13 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1008-1, 2
BANDPASS CAVITIES

The Telewave TWPC-1008-1 and TWPC-1008-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1008 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

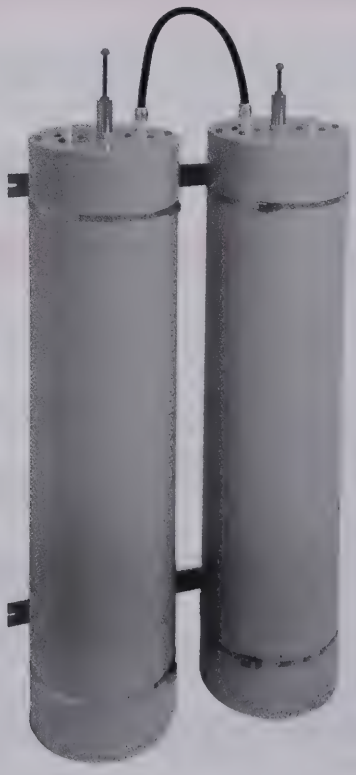
These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TWPC-1008-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1008-1



TWPC-1008-2

TWPC-1008-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWPC-1008-1 SINGLE

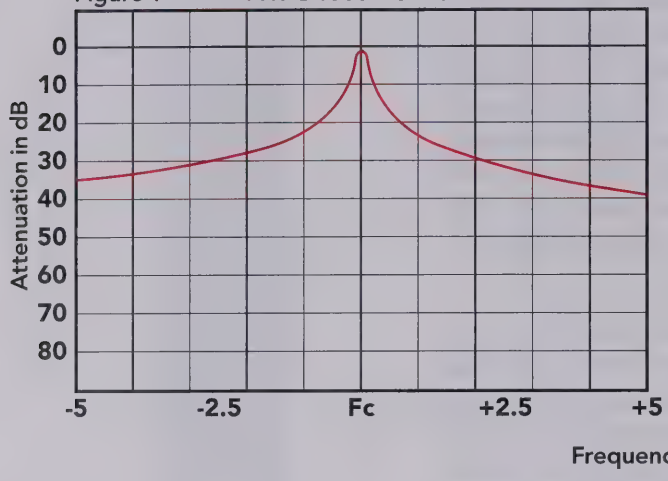


Figure 2 TWPC-1008-2 DUAL

Frequency (MHz)

MODEL	TWPC-1008-1	TWPC-1008-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation at 1 db insertion loss	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 48 (20 x 123)	8.25 x 19 x 48 (20 x 48 x 123)
Net weight lb. (kg)	11 (5)	24 (10.9)
Shipping weight lb. (kg)	16 (7.3)	30 (13.6)
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Threaded Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 36 (13 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TPRC-1005-1, 2
PASS-REJECT CAVITIES

The Telewave TPRC-1005-1 and TPRC-1005-2 are 5" diameter, ¼-wavelength Pass-Reject cavities with an adjustable coupling loop and tuning capacitor. Pass-Reject cavities reject all frequencies outside a narrow pass band, with a tunable notch for additional protection with close spacing. These cavities are commonly used to reduce transmitter sideband noise, and protect receivers against desensitization.

TPRC-1005 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TPRC-1005-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass and reject frequencies are temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TPRC-1005-1

TPRC-1005-2

TPRC-1005-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TPRC-1005-1

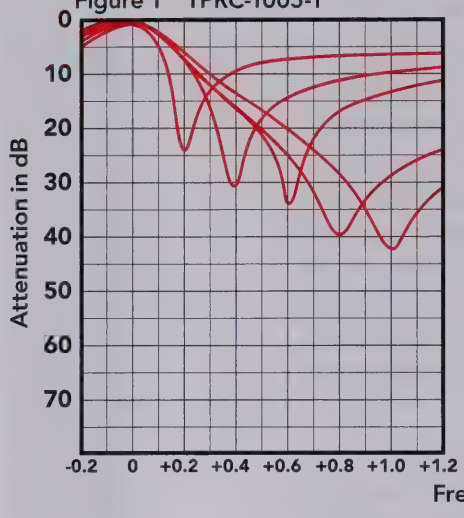
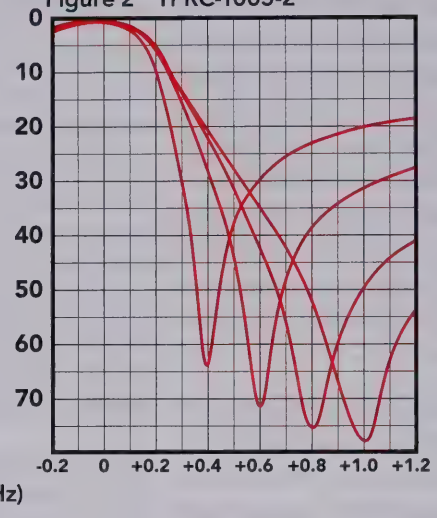


Figure 2 TPRC-1005-2



MODEL	TPRC-1005-1	TPRC-1005-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation at 1 db insertion loss	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 46 (13 x 117)	5.25 x 19 x 46 (13 x 48 x 117)
Net weight lb. (kg)	5 (2.3)	12 (5.5)
Shipping weight lb. (kg)	8 (3.6)	16 (7.3)
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +60°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Threaded Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 36 (13 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: Customized response curves are available to meet exact system requirements.

All specifications subject to change without notice

TPRC-1008-1, 2
PASS-REJECT CAVITIES

The Telewave TPRC-1008-1 and TPRC-1008-2 are 8" diameter, ¼-wavelength Pass-Reject cavities with an adjustable coupling loop and tuning capacitor. Pass-Reject cavities reject all frequencies outside a narrow pass band, with a tunable notch for additional protection with close spacing. These cavities are commonly used to reduce transmitter sideband noise, and protect receivers against desensitization.

TPRC-1008 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TPRC-1008-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass and reject frequencies are temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TPRC-1008-1

TPRC-1008-2

TPRC-1008-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TPRC-1008-1

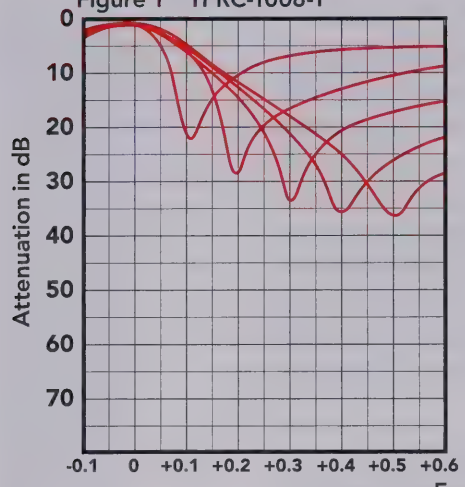
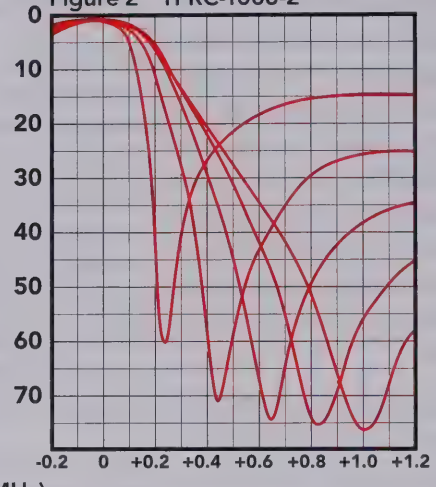


Figure 2 TPRC-1008-2



MODEL	TPRC-1008-1	TPRC-1008-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation at 1 db insertion loss	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 46 (20 x 117)	8.25 x 19 x 46 (20 x 48 x 117)
Net weight lb. (kg)	11 (5)	24 (10.9)
Shipping weight lb. (kg)	16 (7.3)	30 (13.6)
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +60°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 36 (13 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: Customized response curves are available to meet exact system requirements.

All specifications subject to change without notice

TWNC-1005-1, 2
NOTCH CAVITIES

The Telewave TWNC-1005-1 and TWNC-1005-2 are 5" diameter, ¼-wavelength notch cavities with an adjustable coupling loop. Notch cavities are typically used together with Pass or Pass/Reject cavities to eliminate a particular frequency. Notch cavities have very low loss outside the notch band. Telewave can also "tilt" the notch response to move a notch very close to a pass frequency without adversely affecting the pass response.

TWNC-1005 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, which can be easily changed to improve notch depth. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TWNC-1005-2 dual cavity filter provides a deeper notch with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The notch frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWNC-1005-1

TWNC-1005-2

TWNC-1005-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWNC-1005-1

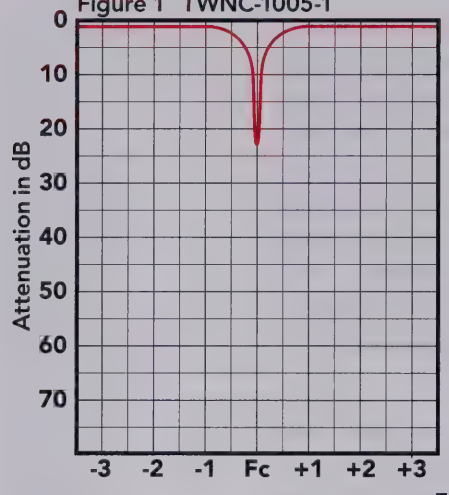
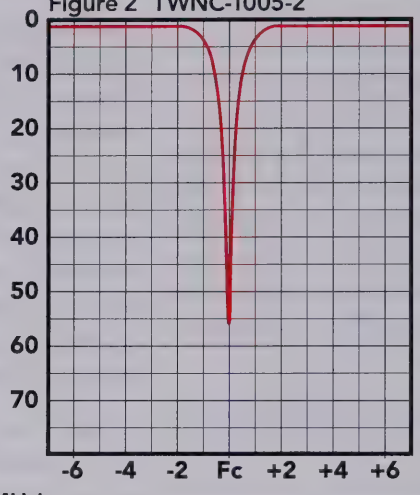


Figure 2 TWNC-1005-2



Frequency (MHz)

MODEL	TWNC-1005-1	TWNC-1005-2
Insertion loss (max)	0.2 dB	0.4 dB
Attenuation at notch frequency	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 46 (13 x 117)	5.25 x 19 x 46 (13 x 48 x 117)
Net weight lb. (kg)	5 (2.3)	12 (5.5)
Shipping weight lb. (kg)	8 (3.6)	16 (7.3
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max)	350 watts	
Temperature range	-30°C to +60°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 36 (13 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: Pass cavities are also available in 8" and 10" diameter
Customized response curves are available to meet exact system requirements.
Contact Telewave for recommendations on your specific design.

All specifications subject to change without notice

TWNC-1008-1, 2
NOTCH CAVITIES

The Telewave TWNC-1008-1 and TWNC-1008-2 are 8" diameter, ¼-wavelength notch cavities with an adjustable coupling loop. Notch cavities are typically used together with Pass or Pass/Reject cavities to eliminate a particular frequency. Notch cavities have very low loss outside the notch band. Telewave can also "tilt" the notch response to move a notch very close to a pass frequency without adversely affecting the pass response.

TWNC-1008 cavities cover 88-108 MHz, and can be tuned at 50 or 75 ohms upon request. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

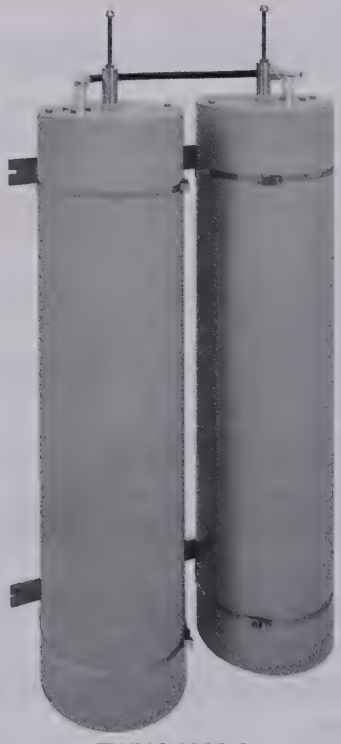
These cavities feature calibrated adjustable coupling, which can be easily changed to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TWNC-1008-2 dual cavity filter provides a deeper notch with minimum insertion loss. Multiple cavities can also provide a wider notch when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The notch frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWNC-1008-1



TWNC-1008-2

TWNC-1008-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWNC-1008-1

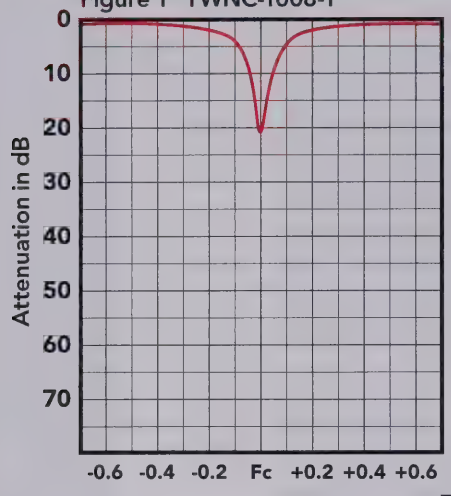
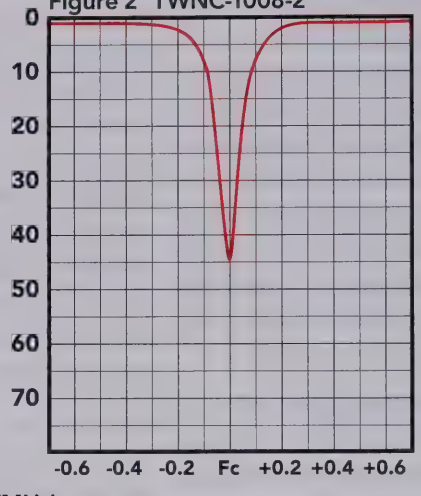


Figure 2 TWNC-1008-2



Frequency (MHz)

MODEL	TWNC-1008-1	TWNC-1008-2
Insertion loss (max)	0.2 dB	0.4 dB
Attenuation at notch frequency	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 46 (20.3 x 117)	8.25 x 19 x 46 (20 x 48 x 117)
Net weight lb. (kg)	11 (5)	24 (10.9)
Shipping weight lb. (kg)	16 (7.3)	30 (13.6)
COMMON SPECIFICATIONS		
Tuning frequency range	88-108 MHz	
Nominal impedance	50 ohms (75 ohm opt.)	
VSWR at resonance (max)	1.5:1	
Input power (max)	350 watts	
Temperature range	-30°C to +60°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 36 (20 x 91)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

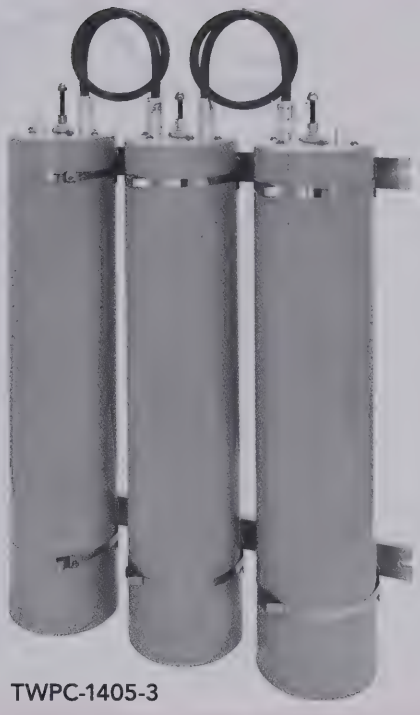
NOTE: Pass cavities are also available in 8" and 10" diameter
Customized response curves are available to meet exact system requirements.
Contact Telewave for recommendations on your specific design.

All specifications subject to change without notice

TWPC-1405-1, 2, 3
BANDPASS CAVITIES

TWPC-1405-1

TWPC-1405-2



TWPC-1405-3

The Telewave TWPC-1405-1, 1405-2, and 1405-3 are 5" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1405 cavities cover 118-148 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1405-2 or 1405-3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1405-1, 2, 3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1
TWPC-1405-1 SINGLE

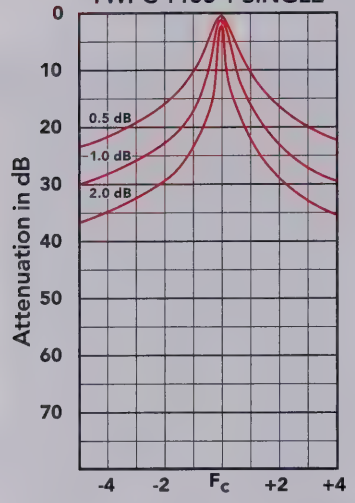


Figure 2
TWPC-1405-2 DUAL

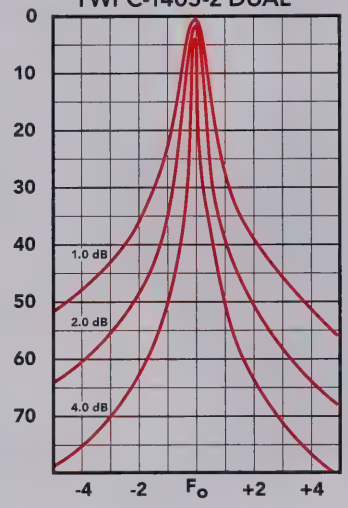
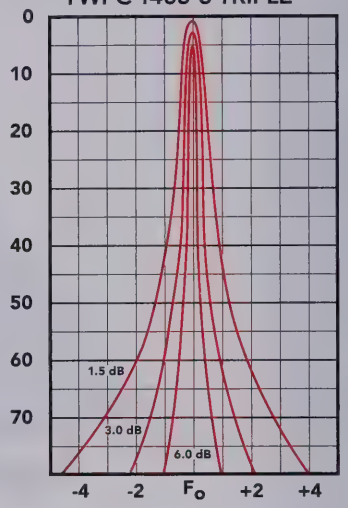


Figure 3
TWPC-1405-3 TRIPLE



MODEL	TWPC-1405-1	TWPC-1405-2	TWPC-1405-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.5 to 6.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	5 x 35 (13 x 89)	5.25 x 19 x 35 (13 x 48 x 89)	5.25 x 19 x 35 (13 x 48 x 89)
Net weight lb. (kg)	6 (2.7)	12.5 (5.7)	20 (9.1)
Shipping weight lb. (kg)	9 (4.1)	15.5 (7)	23 (10.4)
COMMON SPECIFICATIONS			
Tuning frequency range	118-148 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¼ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	5 x 30 (13 x 76)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1408-1, 2
BANDPASS CAVITIES

TWPC-1408-1

TWPC-1408-2

The Telewave TWPC-1408-1 and 1408-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1408 cavities cover 118-148 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1408-2 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1408-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWPC-1408-1 SINGLE

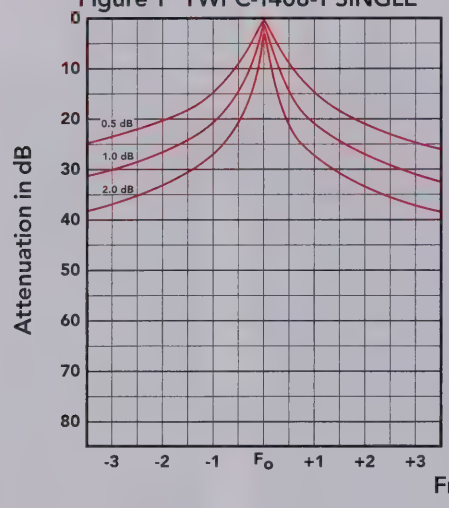
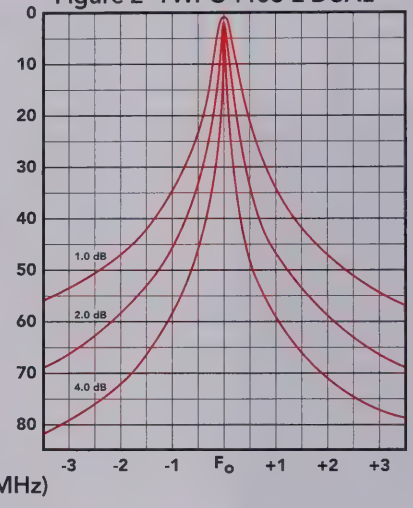


Figure 2 TWPC-1408-2 DUAL



MODEL	TWPC-1408-1	TWPC-1408-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 36 (25 x 91)	8.25 x 19 x 36 (25 x 48 x 91)
Net weight lb. (kg)	8.5 (3.9)	19 (8.6)
Shipping weight lb. (kg)	13 (5.9)	22 (10)
COMMON SPECIFICATIONS		
Tuning frequency range	118-148 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 30 (20 x 76)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1410-1, -2
BANDPASS CAVITIES

TWPC-1410-1

TWPC-1410-2

The Telewave TWPC-1410-1 and 1410-2 are 10" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1410 cavities cover 118-148 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1410-2 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1410-1, -2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWPC-1410-1 SINGLE

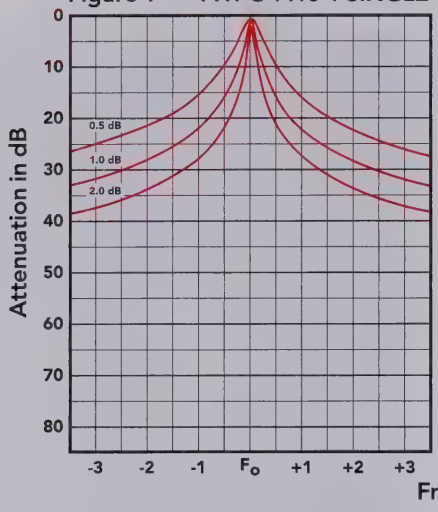
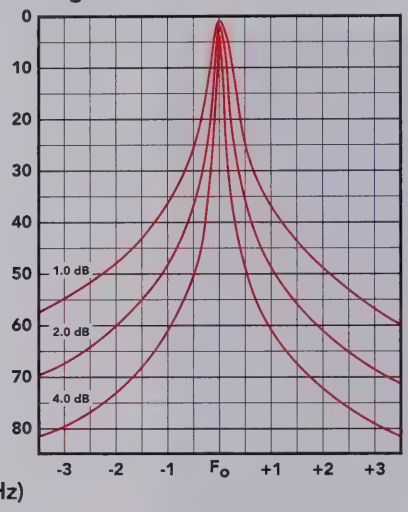


Figure 2 TWPC-1410-2 DUAL



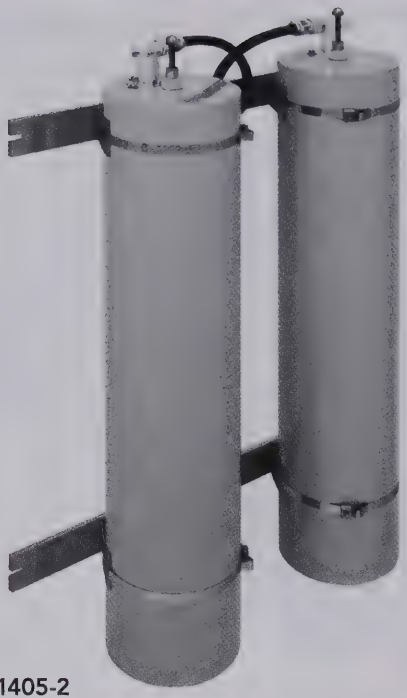
MODEL	TWPC-1410-1	TWPC-1410-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	10 x 32 (26 x 81)	10.25 x 20 x 32 (26 x 51 x 81.3)
Net weight lb. (kg)	11 (5)	22 (10)
Shipping weight lb. (kg)	14 (6.4)	28 (12.8)
COMMON SPECIFICATIONS		
Tuning frequency range	118-148 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	10 x 30 (26 x 76)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TPRC-1405-1,2
PASS/REJECT CAVITIES

TPRC-1405-1



TPRC-1405-2

The Telewave TPRC-1405-1 and 1405-2 are 5" diameter, ¼-wavelength Pass-Reject cavities with an adjustable coupling loop and tuning capacitor. Pass-Reject cavities reject all frequencies outside a narrow pass band, with a tunable notch for additional protection with close spacing. These cavities are commonly used to reduce transmitter sideband noise, and protect receivers against desensitization.

TPRC-1405 cavities cover 118-148 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TPRC-1405-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass and reject frequencies are temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TPRC-1405-1,2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 - Single, 0.5 dB ins. loss

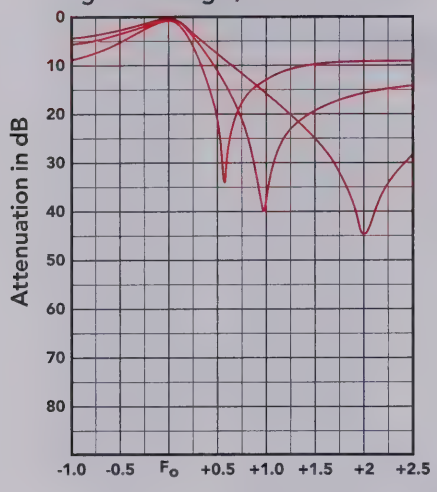
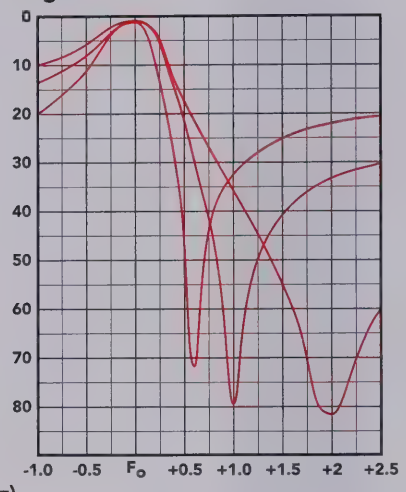


Figure 2 - Dual, 1 dB ins. loss



MODEL	TPRC-1405-1	TPRC-1405-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 35 (13 x 89)	5.25 x 19 x 35 (13 x 48 x 89)
Net weight lb. (kg)	6 (2.7)	12.5 (5.7)
Shipping weight lb. (kg)	9 (4.1)	15.5 (7)
COMMON SPECIFICATIONS		
Tuning frequency range	118-148 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 30 (13 x 76)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

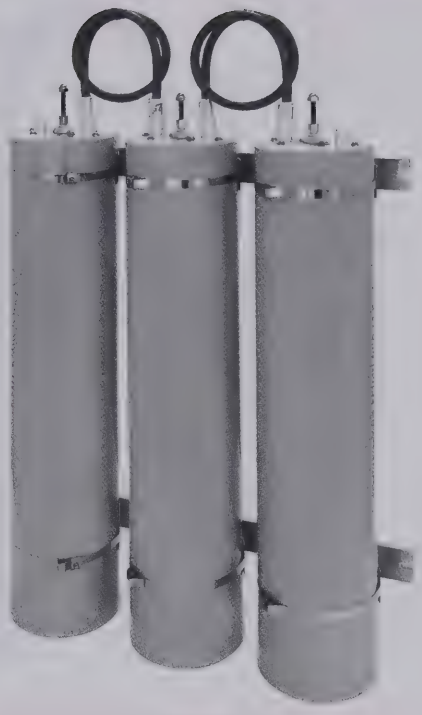
NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1505-1, 2, 3
BANDPASS CAVITIES

TWPC-1505-1

TWPC-1505-2



TWPC-1505-3

The Telewave TWPC-1505-1, 1505-2, and 1505-3 are 5" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1505 cavities cover 148-174 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1505-2 and 1505-3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1505-1, 2, 3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

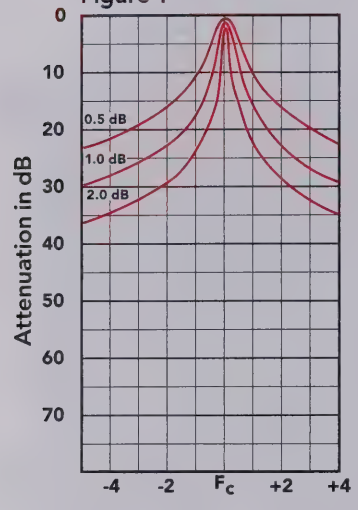


Figure 2

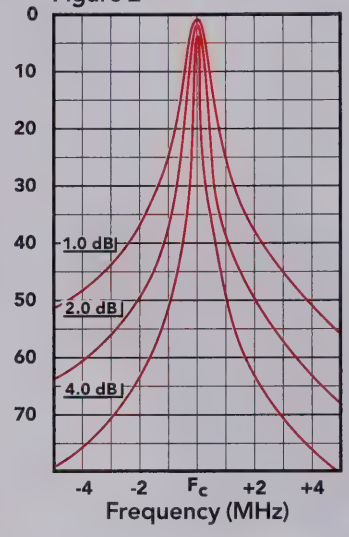
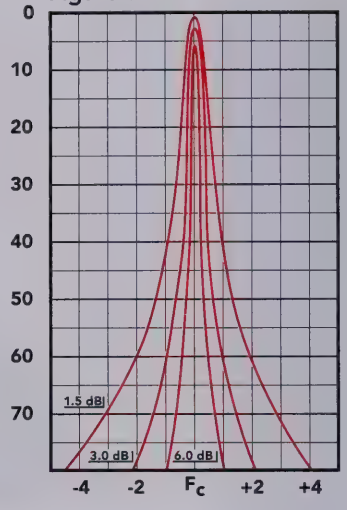


Figure 3



MODEL	TWPC-1505	TWPC-1505-2	TWPC-1505-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.5 to 6.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	5 x 28 (13 x 71)	5.25 x 19 x 28 (13 x 48 x 71)	5.25 x 19 x 28 (13 x 48 x 71)
Net weight lb. (kg)	5 (2.3)	11 (5)	15 (7)
Shipping weight lb. (kg)	8 (3.6)	14 (6.5)	18 (8.1)
COMMON SPECIFICATIONS			
Tuning frequency range	148-174 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¼ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	5 x 23.5 (13 x 60)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1508-1, 2
BANDPASS CAVITIES

TWPC-1508-1

TWPC-1508-2

The Telewave TWPC-1508-1 and 1508-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1508 cavities cover 148-174 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1508-2 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1508-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

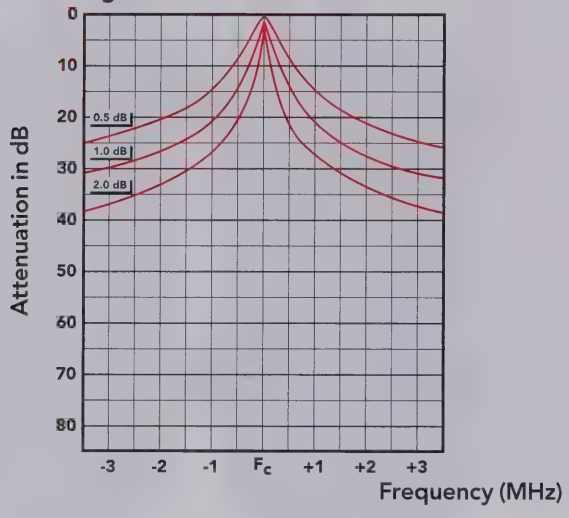
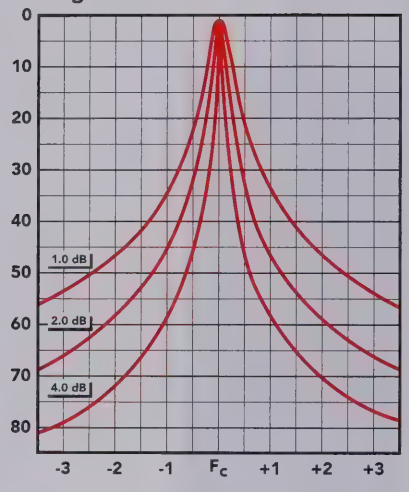


Figure 2



MODEL	TWPC-1508-1	TWPC-1508-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 28 (20.3 x 71)	8.25 x 19 x 28 (20.3 x 48 x 71)
Net weight lb. (kg)	7.5 (3.4)	17 (7.7)
Shipping weight lb. (kg)	11 (5)	20 (9.1)
COMMON SPECIFICATIONS		
Tuning frequency range	148-174 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 23.5 (20 x 60)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-1510-1, 2
BANDPASS CAVITIES

TWPC-1510-1

TWPC-1510-2

The Telewave TWPC-1510-1 and 1510-2 are 10" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-1510 cavities cover 148-174 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 1510-2 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-1510-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

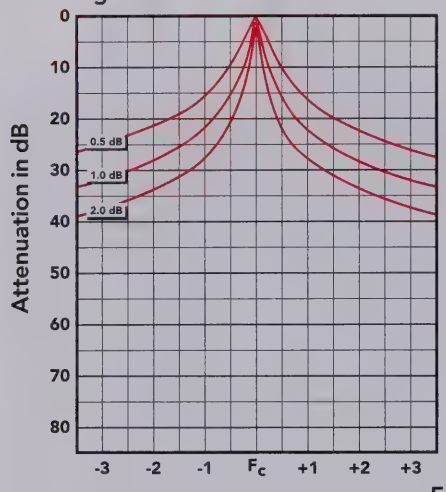
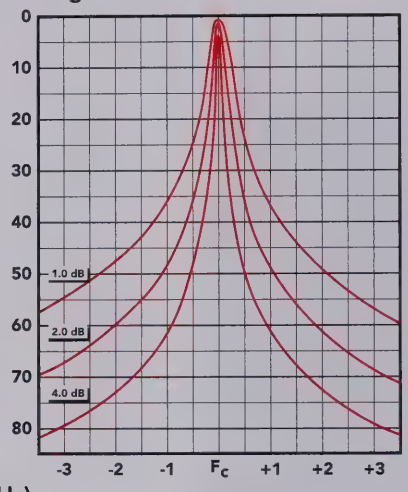


Figure 2



Frequency (MHz)

MODEL	TWPC-1510-1	TWPC-1510-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	10 x 28 (25 x 71)	10.25 x 20 x 28 (50 x 48 x 71)
Net weight lb. (kg)	10 (4.6)	21.5 (9.8)
Shipping weight lb. (kg)	13 (6)	24 (10.9)
COMMON SPECIFICATIONS		
Tuning frequency range	148-174 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	10 x 23.5 (25 x 60)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TPRC-1505-1,2
PASS-REJECT CAVITIES

TPRC-1505-1

TPRC-1505-2

The Telewave TPRC-1505-1 and 1505-2 are 5" diameter, ¼-wavelength Pass-Reject cavities with an adjustable coupling loop and tuning capacitor. Pass-Reject cavities reject all frequencies outside a narrow pass band, with a tunable notch for additional protection with close spacing. These cavities are commonly used to reduce transmitter sideband noise, and protect receivers against desensitization.

TPRC-1505 cavities cover 148-174 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TPRC-1505-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

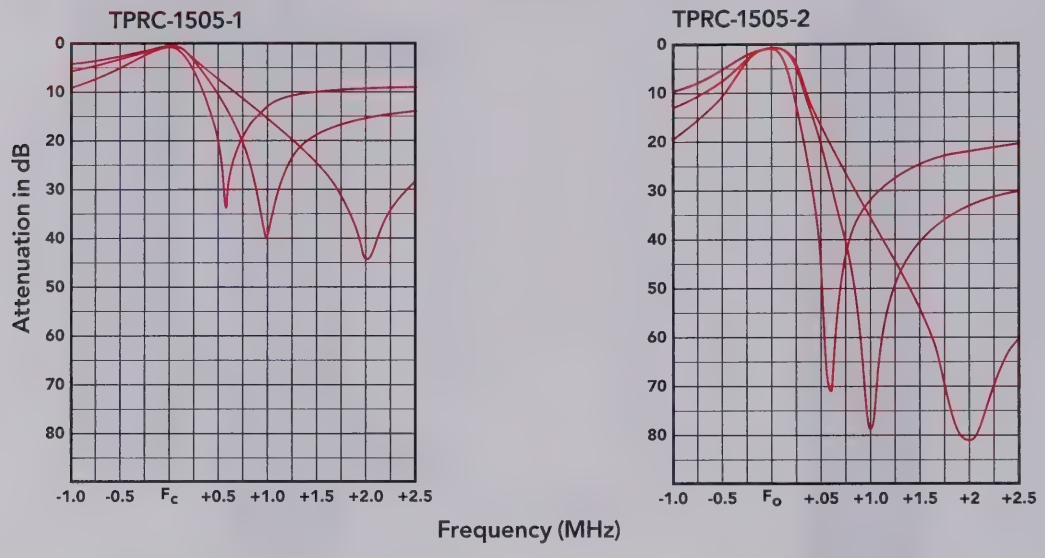
Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass and reject frequencies are temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TPRC-1505-1,2

TYPICAL SELECTIVITY CHARACTERISTICS



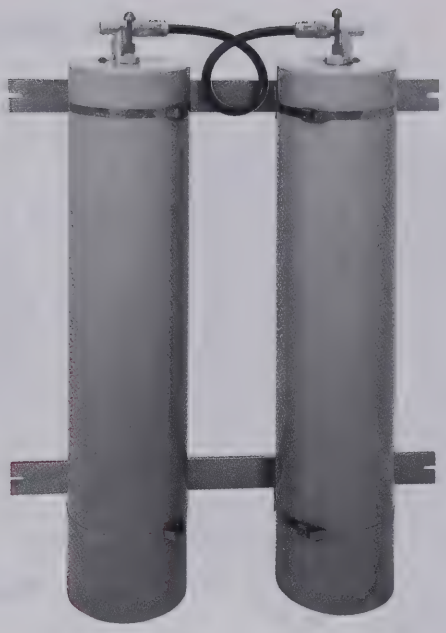
MODEL	TPRC-1505-1	TPRC-1505-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 28 (13 x 71)	5.25 x 19 x 28 (13 x 48 x 71)
Net weight lb. (kg)	5 (2.3)	11 (5)
Shipping weight lb. (kg)	8 (3.6)	14 (6.5)
COMMON SPECIFICATIONS		
Tuning frequency range	148-174 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	1/4 wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 23.5 (13 x 60)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWNC-1505-1,2
NOTCH CAVITIES

TWNC-1505-1



TWNC-1505-2

The Telewave TWNC-1505-1 and 1505-2 are 5" diameter, ¼-wavelength notch cavities with an adjustable coupling loop. Notch cavities are typically used together with Pass or Pass/Reject cavities to eliminate a particular frequency. Notch cavities have very low loss outside the notch band. Telewave can also "tilt" the notch response to move a notch very close to a pass frequency without adversely affecting the pass response.

TWNC-1505 cavities cover 148-174 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, which can be easily changed to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the TWNC-1505-2 dual cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider notch when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass and reject frequencies are temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWNC-1505-1,2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 TWNC-1505-1

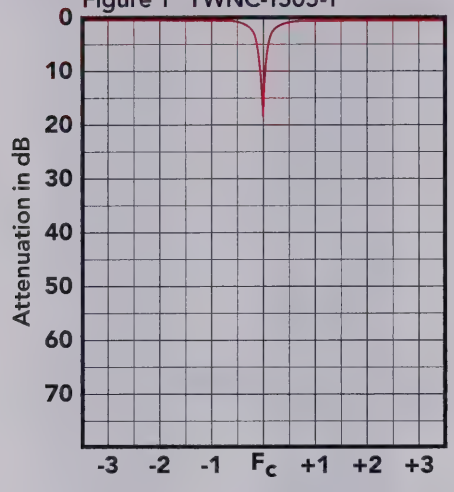
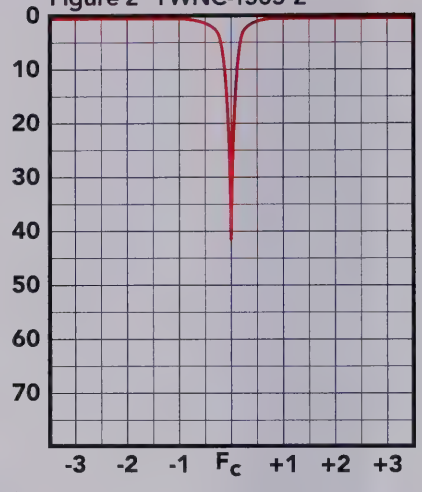


Figure 2 TWNC-1505-2



Frequency (MHz)

MODEL	TWNC-1505-1	TWNC-1505-2
Insertion loss (max)	0.2 dB	0.4 dB
Attenuation at notch frequency	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	5 x 28 (13 x 71)	5.25 x 19 x 28 (13 x 48 x 71)
Net weight lb. (kg)	5 (2.3)	11 (5)
Shipping weight lb. (kg)	8 (3.6)	14 (6.5)
COMMON SPECIFICATIONS		
Tuning frequency range	148-174 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max)	350 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	5 x 23.5 (13 x 60)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

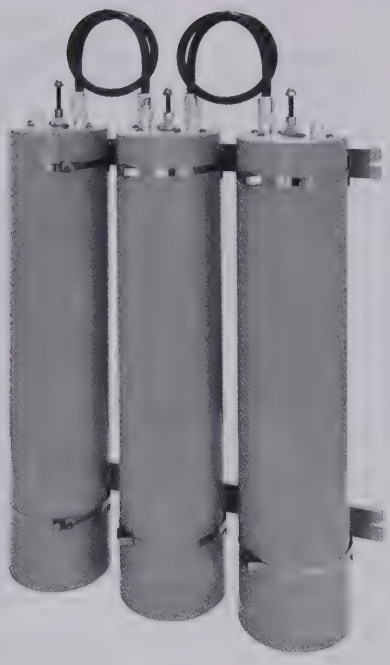
NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-2205-1,2,3
BANDPASS CAVITY

TWPC-2205-1

TWPC-2205-2



TWPC-2205-3

The Telewave TWPC-2205-1, 2205-2, and 2205-3 are 5" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-2205 cavities cover 200-300 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 2205-2 and 2205-3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-2205-1,2,3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

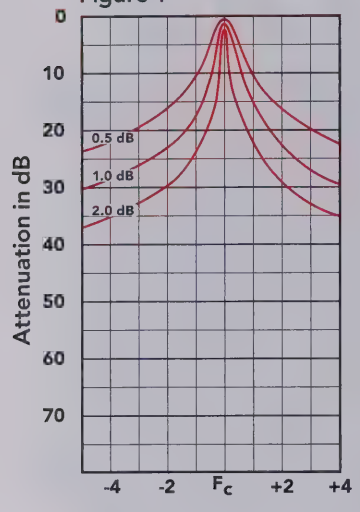


Figure 2

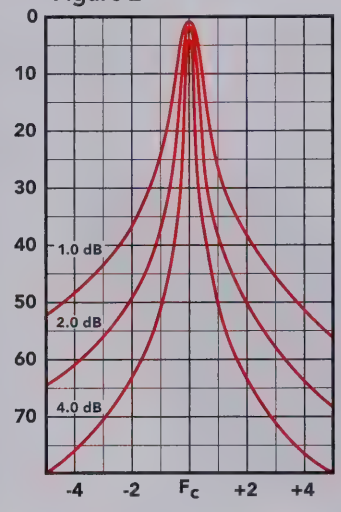
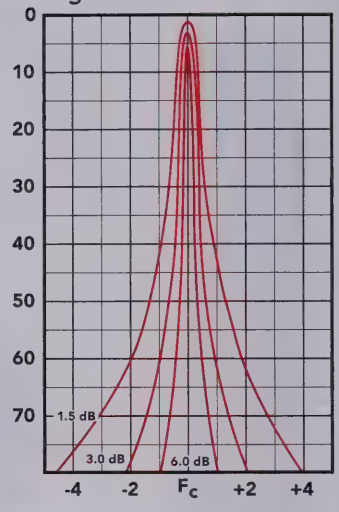


Figure 3



MODEL	TWPC-2205-1	TWPC-2205-2	TWPC-2205-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.5 to 6.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	5 x 24 (13 x 61)	5.25 x 19 x 24 (13 x 48 x 61)	5.25 x 19 x 24 (13 x 48 x 61)
Net weight lb. (kg)	3 (1.5)	11.5 (5.3)	15 (6.8)
Shipping weight lb. (kg)	7 (3.2)	15 (6.8)	19 (8.6)
COMMON SPECIFICATIONS			
Tuning frequency range	200-300 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¼ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	5 x 18 (13 x 46)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-2208-1, 2
BANDPASS CAVITIES

TWPC-2208-1

TWPC-2208-2

The Telewave TWPC-2208-1 and 2208-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-2208 cavities cover 200-300 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 2208-2 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-2208-1, 2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

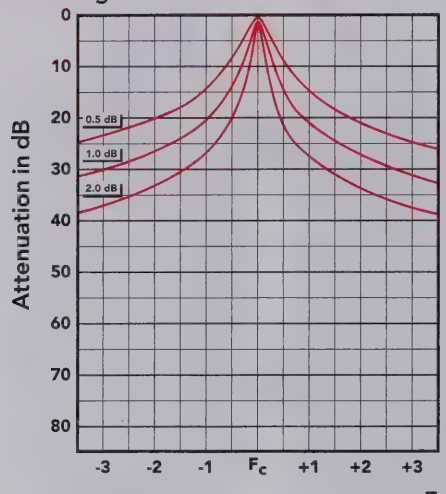
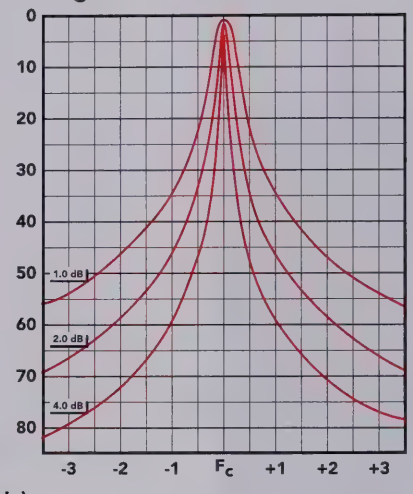


Figure 2



MODEL	TWPC-2208-1	TWPC-2208-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	8 x 22 (25 x 56)	8.25 x 19 x 22 (25 x 48 x 56)
Net weight lb. (kg)	7 (3.2)	15 (6.8)
Shipping weight lb. (kg)	9 (4.1)	19 (8.6)
COMMON SPECIFICATIONS		
Tuning frequency range	200-300 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	8 x 18 (20 x 46)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

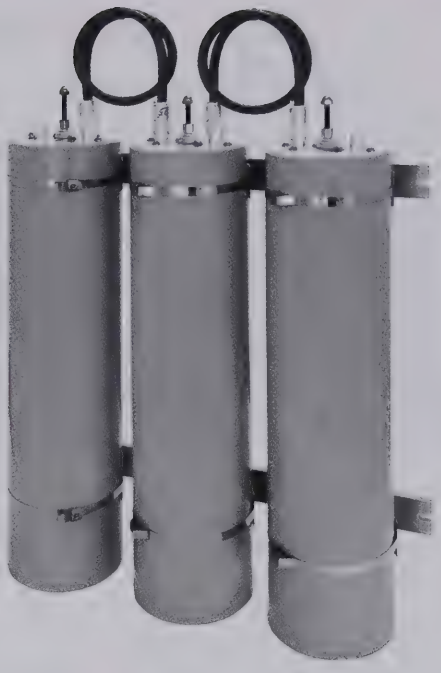
NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-3505-1,2,3
BANDPASS CAVITY

TWPC-3505-1

TWPC-3505-2



TWPC-3505-3

The Telewave TWPC-3505-1, 3505-2, and 3505-3 are 5" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-3505 cavities cover 300-400 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 3505-2 and 3505-3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-3505-1,2,3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

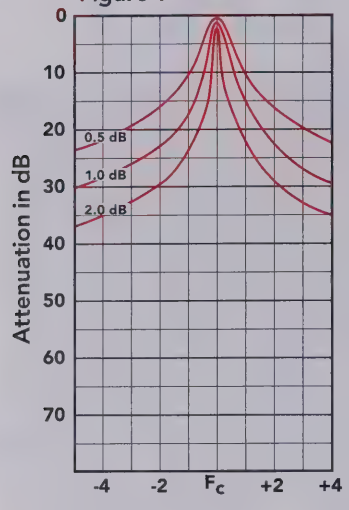


Figure 2

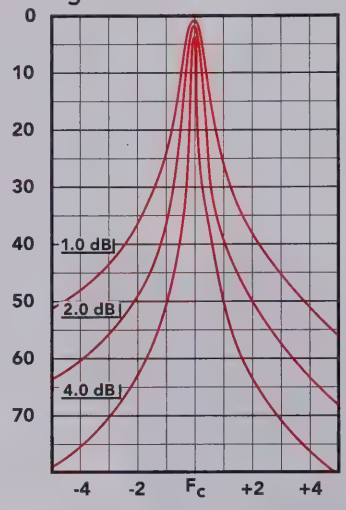
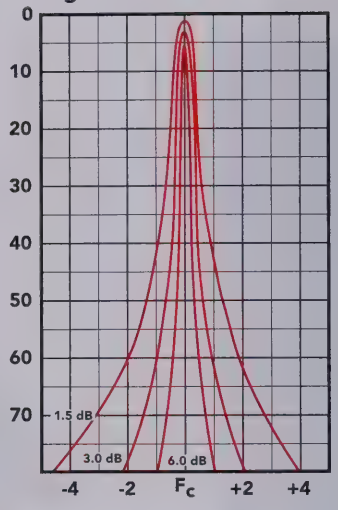


Figure 3



MODEL	TWPC-3505-1	TWPC-3505-2	TWPC-3505-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.5 to 6.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	5 x 24 (13 x 61)	5.25 x 19 x 24 (13 x 48 x 61)	5.25 x 19 x 24 (13 x 48 x 61)
Net weight lb. (kg)	3 (1.5)	11.5 (5.3)	15 (6.8)
Shipping weight lb. (kg)	7 (3.2)	15 (6.8)	19 (8.6)
COMMON SPECIFICATIONS			
Tuning frequency range	300-400 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¼ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	5 x 18 (13 x 46)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

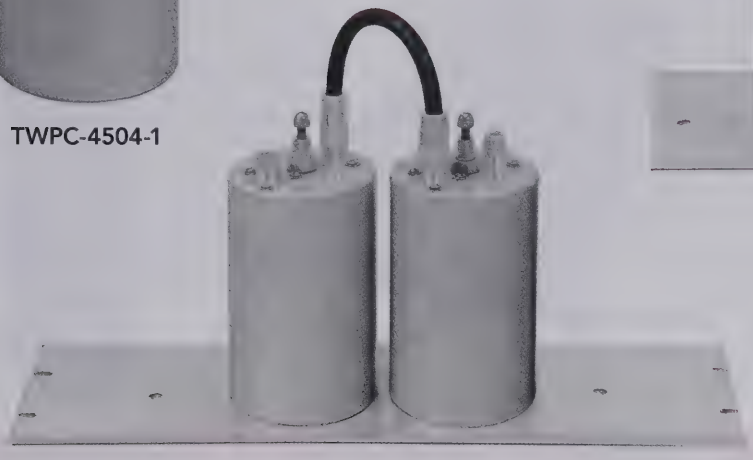
NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-4504-1, 2, 3
BANDPASS CAVITIES

TWPC-4504-1

TWPC-4504-3



TWPC-4504-2

The Telewave TWPC-4504-1, 4504-2, and 4504-3 are 4" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-4504 cavities cover 400-512 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 4 dB to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 4504-2 and -3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Up to four 4" cavities can be mounted on one 19" x 5.25" panel.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-4504-1, 2, 3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

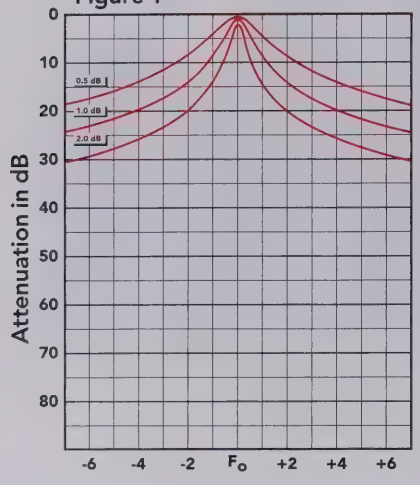


Figure 2

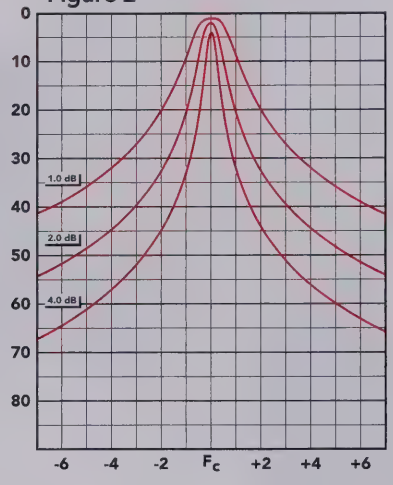
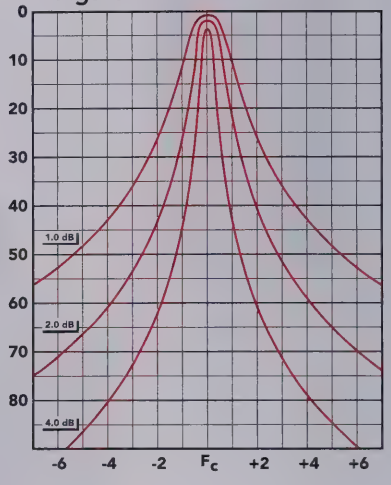


Figure 3



MODEL	TWPC-4504-1	TWPC-4504-2	TWPC-4504-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	4 x 8 (10 x 20)	5.25 x 19 x 11 (13 x 48 x 28)	5.25 x 19 x 11 (13 x 48 x 28)
Net weight lb. (kg)	3.3 (1.5)	11.5 (5.25)	14 (6.8)
Shipping weight lb. (kg)	7 (3.2)	15 (6.8)	19 (8.6)
COMMON SPECIFICATIONS			
Tuning frequency range	400-512 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¼ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	4 x 8 (10 x 20)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

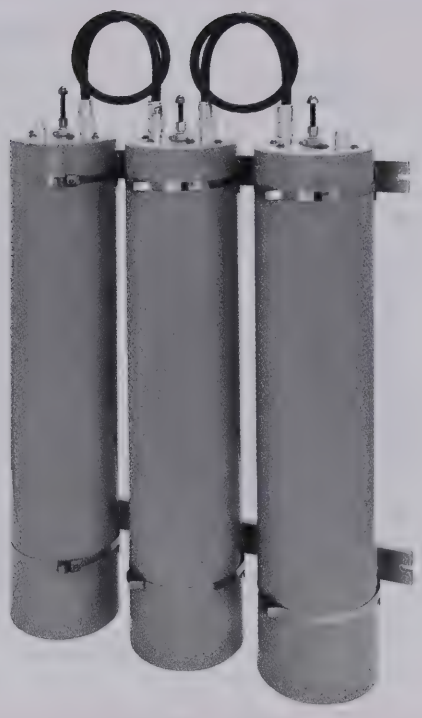
All specifications subject to change without notice

TWPC-4505-1, 2, 3

BANDPASS CAVITIES - 3/4 WAVE

TWPC-4505-1

TWPC-4505-2



TWPC-4505-3

The Telewave TWPC- 4505-1, 4505-2, and 4505-3 are 5" diameter, ¾ wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-4505 cavities cover 400-512 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 4505-2 and 4505-3 cavity filters provide greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-4505-1, 2, 3

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1

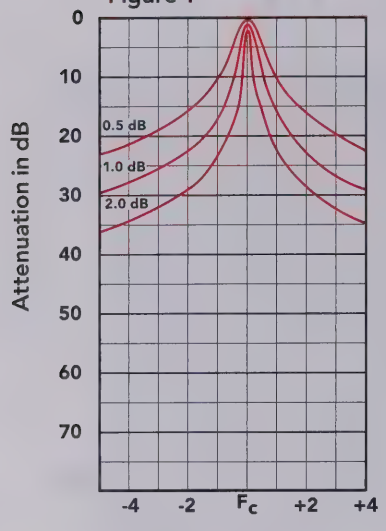


Figure 2

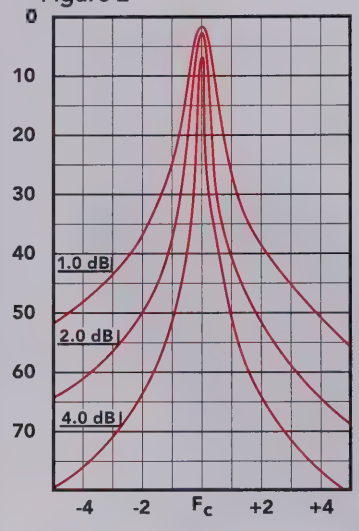
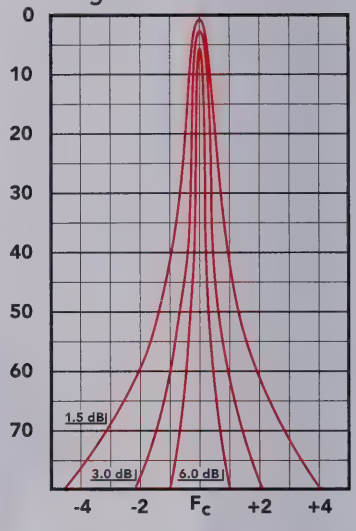


Figure 3



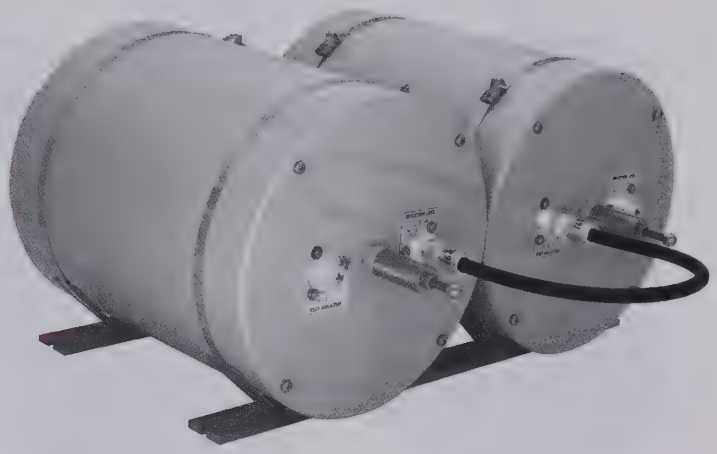
MODEL	TWPC-4505-1	TWPC-4505-2	TWPC-4505-3
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB	1.5 to 6.0 dB
Attenuation	See figure 1	See figure 2	See figure 3
Maximum dimensions with tuners extended in. (cm)	5 x 28 (13 x 71)	5.25 x 19 x 28 (13 x 48 x 71)	5.25 x 19 x 28 (13 x 48 x 71)
Net weight lb. (kg)	5 (2.3)	11.5 (5.3)	15 (6.8)
Shipping weight lb. (kg)	8 (3.6)	14 (6.5)	18 (8.1)
COMMON SPECIFICATIONS			
Tuning frequency range	400-512 MHz		
Nominal impedance	50 ohms		
VSWR at resonance (max)	1.5:1		
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts		
Temperature range	-30°C to +70°C		
Cavity electrical length	¾ wavelength		
Outer conductor, end plates	6061-T6 aluminum		
Inner conductor, coupling loops	Silver plated copper		
Tuning rod	Invar		
Contactors, fingerstock	Beryllium copper		
Cavity dimensions (Diam. x H) in. (cm)	5 x 23.5 (13 x 60)		
Connectors	N or UHF female (opt.)		
Finish	Gray acrylic enamel		

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-4510-1,2
BANDPASS CAVITY

TWPC-4510-1



TWPC-4510-2

The Telewave TWPC-4510-1 and 4510-2 are 10" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-4510 cavities cover 400-512 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 4510-2 cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-4510-1,2

TYPICAL BANDPASS CAVITY RESPONSE CURVES

Figure 1

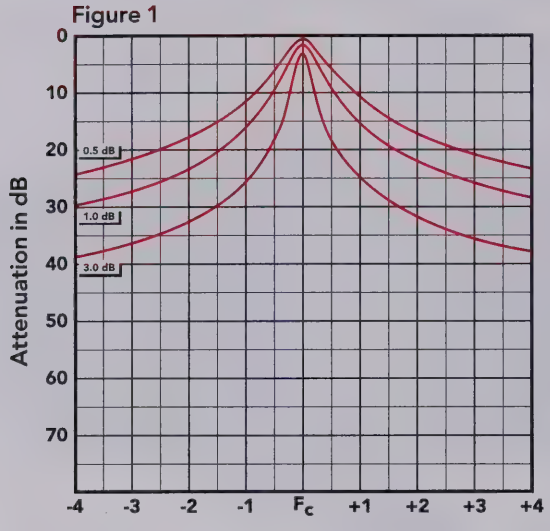
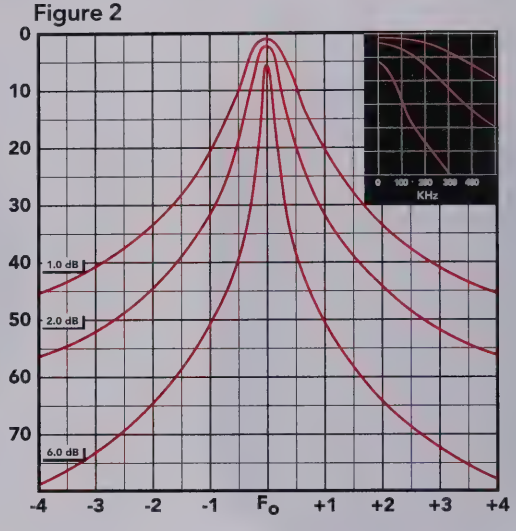


Figure 2



Frequency (MHz)

MODEL	TWPC-4510-1	TWPC-4510-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Maximum dimensions with tuners extended in. (cm)	10 x 17 (25.4 x 43)	10.25 x 20 x 17 (26 x 50.8 x 43)
Net weight lb. (kg)	7.5 (3.4)	17 (7.7)
Shipping weight lb. (kg)	10 (4.5)	22 (10)
COMMON SPECIFICATIONS		
Tuning frequency range	400-512 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Cavity dimensions (Diam. x H) in. (cm)	10 x 12 (25.4 x 31)	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-7908-1, -2
BANDPASS CAVITY

TWPC-7908-1

TWPC-7908-2

The Telewave TWPC-7908-1 and 7908-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-7908 cavities cover 776-825 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 7908-2 cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-7908-1, -2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 - TWPC-7908-1 at 790 MHz

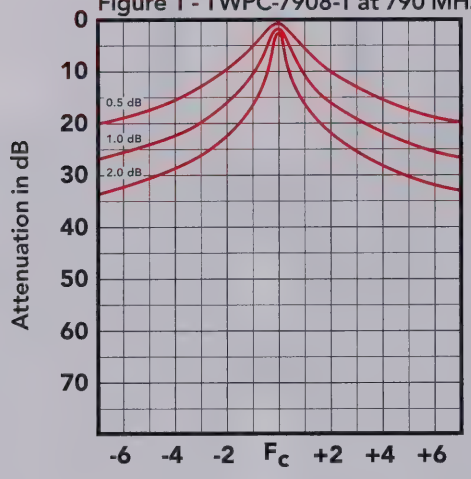
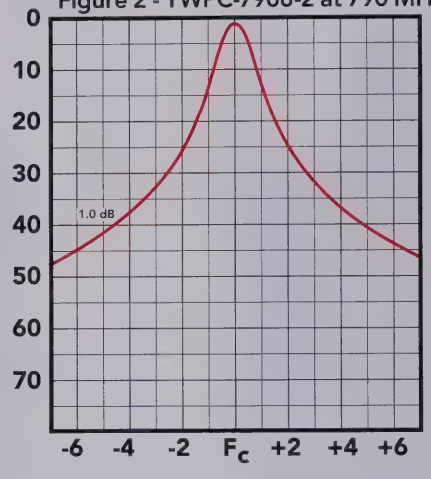


Figure 2 - TWPC-7908-2 at 790 MHz



Frequency (MHz)

MODEL	TWPC-7908-1	TWPC-7908-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Max size - tuners extended in. (cm)	8 x 11.875 (20.3 x 30.1)	8.25 x 19 x 15.375 (21 x 48.3 x 39.1)
Net weight lb. (kg)	7 (3.2)	17 (7.7)
Shipping weight lb. (kg)	10 (4.5)	22 (10)
COMMON SPECIFICATIONS		
Tuning frequency range	776-825 MHz	
Nominal impedance	50 ohms	
VSWR at resonance (max)	1.5:1	
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts	
Temperature range	-30°C to +70°C	
Cavity electrical length	¼ wavelength	
Cavity size (Diam. x H) in. (cm)	8 x 11.875 (20.3 x 30.2)	
Outer conductor, end plates	6061-T6 aluminum	
Inner conductor, coupling loops	Silver plated copper	
Tuning rod	Invar	
Contactors, fingerstock	Beryllium copper	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

TWPC-8608-1,-2
BANDPASS CAVITIES

TWPC-8608-1

TWPC-8608-2

The Telewave TWPC-8608-1 and 8608-2 are 8" diameter, ¼-wavelength, high "Q" bandpass cavity filters with superior selectivity. Bandpass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

TWPC-8608 cavities cover 800-970 MHz. All cavities are tuned to specified frequencies prior to shipping, and no further adjustments should be required. The positive locking mechanism allows for quick field retuning if frequency changes become necessary.

These cavities also feature calibrated adjustable coupling, and insertion loss can be easily set from 0.5 dB to 2 dB or more to improve selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 8608-2 cavity filter provides greater selectivity with minimum insertion loss. Multiple cavities can also provide a wider passband when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from -30°C to +70°C. Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.

TWPC-8608-1,-2

TYPICAL SELECTIVITY CHARACTERISTICS

Figure 1 - TWPC-8608-1 at 860 MHz

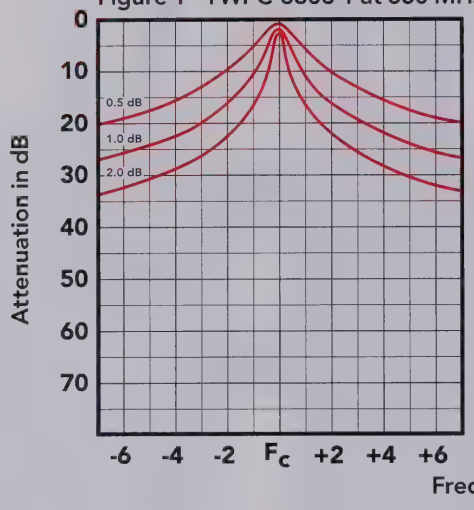
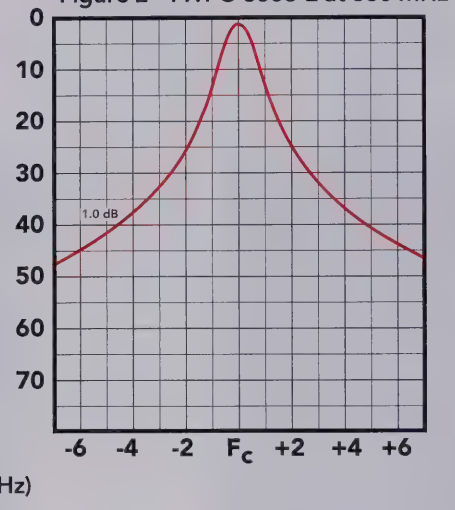


Figure 2 - TWPC-8608-2 at 860 MHz



MODEL	TWPC-8608-1	TWPC-8608-2
Insertion loss (adjustable)	0.5 to 2.0 dB	1.0 to 4.0 dB
Attenuation	See figure 1	See figure 2
Max size - tuners extended in. (cm)	8 x 15.375 (20.3 x 39.1)	8.25 x 19 x 15.375 (21 x 48.3 x 39.1)
Net weight lb. (kg)	7 (3.2)	17 (7.7)
Shipping weight lb. (kg)	10 (4.5)	22 (10)

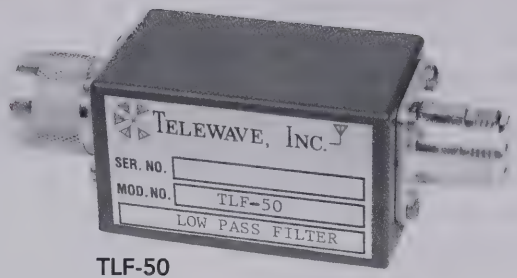
COMMON SPECIFICATIONS	
Tuning frequency range	800-970 MHz
Nominal impedance	50 ohms
VSWR at resonance (max)	1.5:1
Input power (max) vs. insertion loss	0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts
Temperature range	-30°C to +70°C
Cavity electrical length	¼ wavelength
Cavity size (Diam. x H) in. (cm)	8 x 11.875 (20.3 x 30.2)
Outer conductor, end plates	6061-T6 aluminum
Inner conductor, coupling loops	Silver plated copper
Tuning rod	Invar
Contactors, fingerstock	Beryllium copper
Connectors	N or UHF female (opt.)
Finish	Gray acrylic enamel

NOTE: When ordering be sure to specify exact frequency and model number. Contact the factory if additional information or assistance is required.

All specifications subject to change without notice

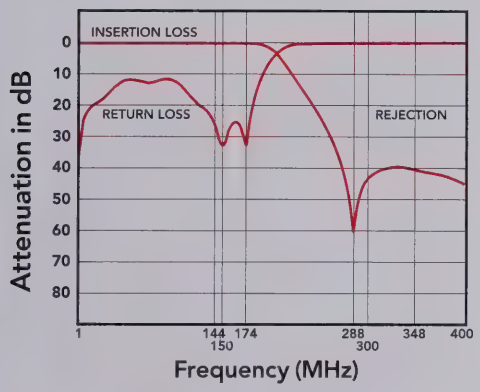
TLF-50, -90, -90H, 150, 450, 760, 860
LOWPASS FILTERS

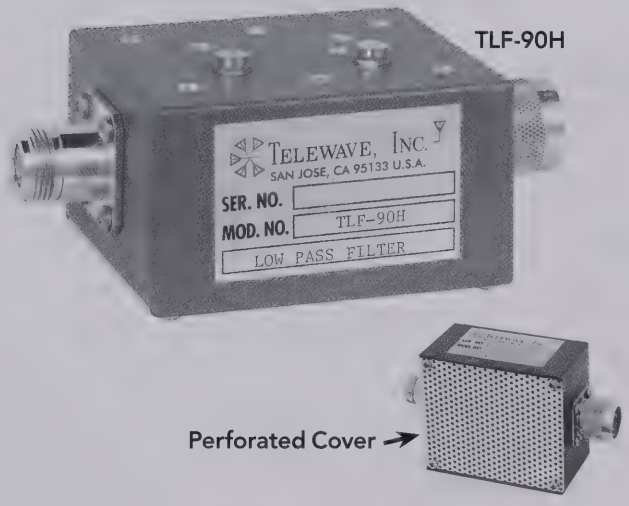
Telewave Lowpass Filters eliminate harmonics, spurs, and intermodulation products that may occur above the fundamental frequency of a transmitter. These devices feature extremely low insertion loss, and are designed to be installed in the transmission line continuously. The standard connector configuration is N Female to N Male. Other combinations are available, including 7-16 DIN (extra cost).



TLF-50

TYPICAL RESPONSE CURVE - TLF-150





TLF-90H

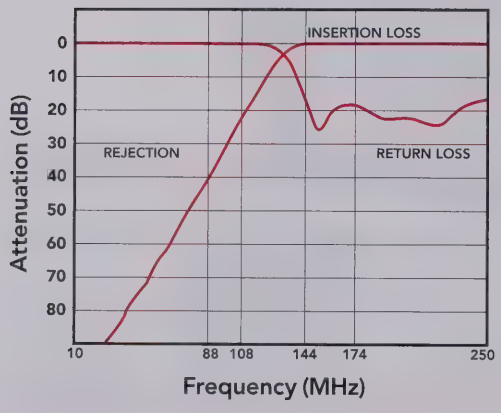
SPECIFICATIONS	TLF-50	TLF-90	TLF-90H	TLF-150	TLF-450	TLF-760, 860
Frequency range (MHz)	40-54	88-108	88-108	144-174	406-512	763-824, 806-960
Impedance (nom.)	50 ohms					
VSWR (max)	1.3:1					
Power (max)	200 W	200 W	1000 W	400 W	200 W	200 W
Insertion loss	0.15 dB typ. / 0.25 dB max					
Rejection at 2Fc (typ)	30 dB	40 dB	35 dB	40 dB	50 dB	45 dB
Dimensions (HWL) in.	1.25 x 1.5 x 4		1.625 x 2.5 x 4.5		1.25 x 1.5 x 4	
Dimensions (HWL) cm	3.2 x 3.8 x 10.2		4.1 x 6.4 x 11.4		3.2 x 3.8 x 10.2	
Weight lb. (kg)	0.5 (0.23)		1 (0.45)		0.5 (0.23)	
Connectors	Standard configuration is N-F to N-M for inline use. Any combination of N, UHF, BNC, or 7-16 DIN male or female may be specified. (7-16 DIN is additional cost.)					

THF-150, 450, 760, 860
HIGHPASS FILTERS

Telewave Highpass Filters eliminate spurs and noise that may occur below the fundamental frequency of a transmitter. They are also used to protect receivers from nearby high power transmitters. These devices feature extremely low insertion loss, and are designed to be installed in the transmission line continuously. The standard connector configuration is N Female to N Male. Other combinations are available, including 7-16 DIN (extra cost).

THF-150

TYPICAL RESPONSE CURVE - THF-150



SPECIFICATIONS	THF-150	THF-450	THF-760	THF-860
Frequency range	144-174 MHz	450-470 MHz	763-869 MHz	850-870 MHz
Impedance (nom.)	50 ohms			
VSWR (max)	1.3:1			
Power (typ.)	25 watts continuous / 50 watts intermittent - Contact Telewave for higher power			
Insertion loss	0.15 dB typ. / 0.25 dB max			
Rejection (typ) at 1/2 Fc	50 dB	40 dB	10 dB	10 dB
Dimensions (HWL) in. (cm)	1.25 x 1.5 x 4 (3.2 x 3.8 x 10.2)			
Weight lb. (kg)	0.5 (0.23)			
Connectors	Standard configuration is N-F to N-M for inline use. Any combination of N, UHF, BNC, or 7-16 DIN male or female may be specified. (7-16 DIN is additional cost.)			

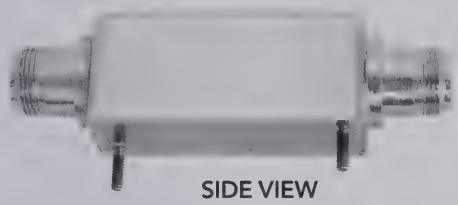
All specifications subject to change without notice

TWX-50, 150
RECEIVER CRYSTAL FILTER

Telewave Crystal Filters provide an extremely narrow bandpass for a single frequency, to protect a receiver from nearby transmitters and adjacent channel interference. This bandpass is much sharper than a typical high "Q" cavity filter.

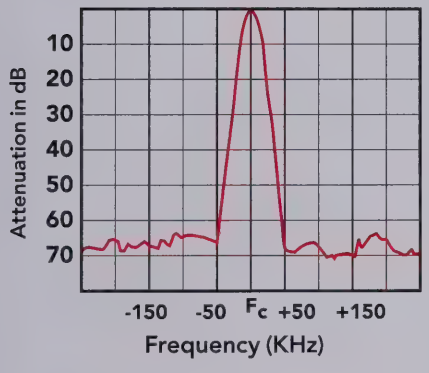
The combination of a crystal filter and a Telewave TLA or TGA series preamplifier can often rescue a receiver that has been impacted by an new adjacent transmitter, or allow implementation of a system with insufficient available frequency spacing.

TWX-50, 150



SIDE VIEW

TYPICAL RESPONSE



SPECIFICATIONS	TWX-50	TWX-150
Frequency range	36-88 MHz	138-174 MHz
Attenuation ± 30 KHz (min)	20 dB	20 dB
Attenuation ± 50 KHz (min)	50 dB	60 dB
Insertion loss (typ)	4 dB	7 dB
Impedance / VSWR (max)	50 ohms / 1.2:1	
Input level (max)	0 dBm	
Temperature	-20° to +70° C	
Dimensions (HWL) in. (cm)	1 x 1 x 3.75 (2.5 x 2.5 x 9.5)	
Weight lb. (kg)	0.5 (0.23)	

6 DUPLEXERS

Bandpass

Bandpass duplexers allow only a narrow band of frequencies to reach the receiver or leave the transmitter. All other frequencies are rejected. These duplexers are the best available for crowded RF environments where transmit and receive frequencies have significant separation.

Pass - Reject

Pass / Reject duplexers offer a modified pass response for a narrow band of frequencies, and also provide a tunable notch which deepens the reject response at a particular frequency. This type of filter supports closer frequency spacing than a bandpass duplexer.

Bandpass / Bandreject

Bandpass / Bandreject duplexers provide a true bandpass for a group of transmitters and receivers, with a tunable notch which increases the reject response at a particular frequency. These duplexers can also combine two transmitters into one antenna.

Compact

Compact duplexers use specially designed Telewave square cavity filters. The size and form factor of these duplexers allows for more efficient use of rack space in many installations.

Combline

Combline duplexers offer wide bandpass and sharp skirts in a very compact package. The combline design also exhibits very low insertion loss and can handle up to 650 watts of power.

Mobile

Mobile duplexers are very compact devices which use helical resonators to provide a notchband response for a transmitter and receiver. They are ideally suited for limited space applications with one transmitter and one receiver.

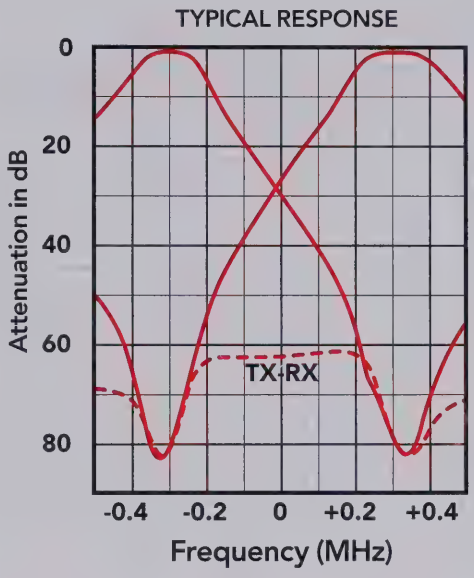
TPRD-0354, 0454

PASS / REJECT DUPLEXER

The Telewave TPRD-0354 and TPRD-0454 allow the simultaneous operation of a transmitter and receiver into a common antenna. These duplexers feature minimum insertion loss, and maximum isolation between transmitter and receiver. The Pass-Reject design combines a bandpass response with a tunable notch at the RX frequency for improved performance at close spacing.

The superior construction of Telewave cavity duplexers allows better rejection of transmitter spurious radiation, providing greater receiver protection. Selectivity and insertion loss are fully adjustable by rotating the calibrated connector loops.

Telewave cavities are manufactured with ¼" aluminum top plates, which are fully welded to the aluminum outer conductor. Silver plated tuners, beryllium copper finger stock contactors, and threaded Invar tuning rods assure maximum temperature stability, higher "Q", and years of trouble free operation.



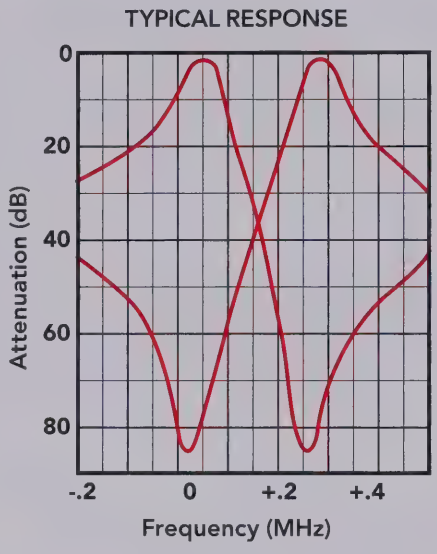
ELECTRICAL SPECIFICATIONS	TPRD-0354	TPRD-0454
Frequency coverage / tuning range	30-40 MHz / ± 2.5 MHz	40-50 MHz / ± 2.5 MHz
Frequency separation (min)	600 KHz	
Maximum input power	350 watts	
Insertion loss	1.0 dB (TX / RX to ant.)	
RX isolation / TX noise suppression	80 dB at ±600 KHz	
VSWR (max)	1.5:1	
Temperature range	30°C to +60°C	
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm)	88 x 19 x 11 (224 x 48 x 28)	72 x 19 x 11 (183 x 48 x 28)
Tuners fully extended in. (cm)	97 x 19 x 11 (246 x 48 x 28)	81 x 19 x 11 (206 x 48 x 28)
Cavities	(4) - 5"	
Mounting	19" Rack or wall mount	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	65 (29.5)	51 (23.2)

TPRD-0384, 0484
PASS / REJECT DUPLEXER

The Telewave TPRD-0384 and TPRD-0484 allow the simultaneous operation of a transmitter and receiver into a common antenna. These duplexers feature minimum insertion loss, and maximum isolation between transmitter and receiver. The Pass-Reject design gives much better performance for close spacing than an equivalent bandpass duplexer.

The superior construction of Telewave cavity duplexers allows better rejection of transmitter spurious radiation, providing greater receiver protection. Selectivity and insertion loss are fully adjustable by rotating the calibrated connector loops.

Telewave cavities are manufactured with ¼" aluminum top plates, which are fully welded to the aluminum outer conductor. Silver plated tuners, beryllium copper finger stock contactors, and threaded Invar tuning rods assure maximum temperature stability, higher "Q", and years of trouble free operation.



ELECTRICAL SPECIFICATIONS	TPRD-0384	TPRD-0484
Frequency coverage / tuning range	30-40 MHz / ± 2.5 MHz	40-50 MHz / ± 2.5 MHz
Frequency separation (min)	300 KHz	
Maximum input power	350 watts	
Insertion loss	1.0 dB (TX / RX to ant.)	
RX isolation / TX noise suppression	80 dB at ±300 KHz	
VSWR (max)	1.5:1	
Temperature range	-30°C to +60°C	
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm)	88 x 19 x 17 (224 x 48 x 43)	72 x 19 x 17 (183 x 49 x 43)
Tuners fully extended in. (cm)	97 x 19 x 17 (246 x 48 x 43)	81 x 19 x 17 (206 x 48 x 43)
Cavities	(4) - 8"	
Mounting	19" Rack or wall mount	
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	105 (48)	86 (39)

All specifications subject to change without notice

TWDS-6016 Rev. 10/08

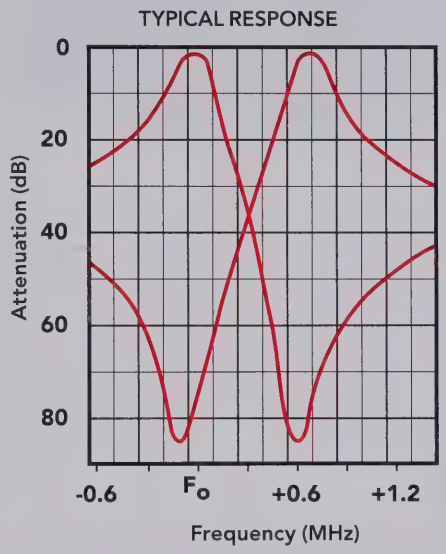
TPRD-0754

PASS / REJECT DUPLEXER

The Telewave TPRD-0754 allows the simultaneous operation of a transmitter and receiver into a common antenna. This duplexer features minimum insertion loss, and maximum isolation between transmitter and receiver. The Pass-Reject design gives much better performance for close spacing than an equivalent bandpass duplexer.

The superior construction of Telewave cavity duplexers allows better rejection of transmitter spurious radiation, providing greater receiver protection. Selectivity and insertion loss are fully adjustable by rotating the calibrated connector loops.

Telewave cavities are manufactured with ¼" aluminum top plates, which are fully welded to the aluminum outer conductor. Silver plated tuners, beryllium copper finger stock contactors, and threaded Invar tuning rods assure maximum temperature stability, higher "Q", and years of trouble free operation.



ELECTRICAL SPECIFICATIONS	
Frequency coverage / tuning range	66-88 MHz
Frequency separation (min)	600 KHz
Maximum input power	350 watts
Insertion loss	1.2 dB (TX / RX to ant.)
RX isolation / TX noise suppression	80 dB at ±600 KHz
VSWR (max)	1.5:1
Temperature range	-30°C to +60°C
MECHANICAL SPECIFICATIONS	
Dimensions (HWD) in. (cm)	47 x 19 x 11 (119 x 48 x 28)
Tuners fully extended in. (cm)	54 x 19 x 11 (137 x 48 x 28)
Cavities	(4) - 5"
Mounting	19" Rack or wall mount
Connectors	N or UHF female (opt.)
Finish	Gray acrylic enamel
Net weight lb. (kg)	40 (18.2)

TPRD-1084

PASS-REJECT BASE STATION DUPLEXER

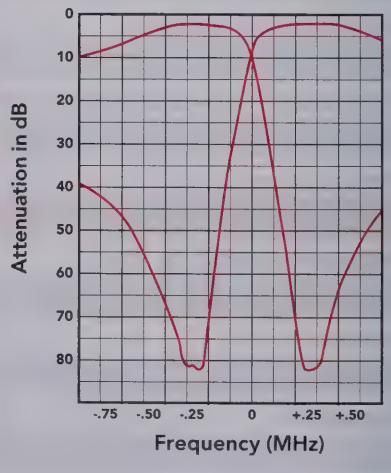
The Telewave TPRD-1084 Duplexer allows simultaneous operation of a transmitter and receiver into a common antenna. This Pass-Reject duplexer is ideal for use in systems requiring maximum isolation, with close frequency spacing down to 500 KHz.

The TPRD-1084 duplexer has two pass-reject cavities each in the transmitter and receiver sections. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See graphs for typical response curves).

Telewave duplexers have ¼-inch aluminum top plates which are fully welded to the aluminum outer conductor. As a result of their superior construction, Telewave 8" cavity duplexers achieve greater rejection of transmitter spurious and noise radiation, providing better receiver protection. Silver-plated tuners, beryllium copper finger stock contactors, and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble-free operation.

ELECTRICAL SPECIFICATIONS		
Tuning range		88-108 MHz
Frequency separation (min)		500 KHz
Maximum input power		300 watts
Insertion loss TX / RX to ant.		1.5 dB
VSWR (max)		1.5:1
Temperature range		-30°C to +70°C
RX isolation		80 dB at ±500 KHz
TX noise suppression		80 dB at ±500 KHz
MECHANICAL SPECIFICATIONS		
Cavities		(4) - 8"
Mounting		19" Rack or wall mount
Connectors		N or UHF female (opt.)
Finish		Gray acrylic enamel
Net weight lb. (kg)		37 (16.8)
Dimensions (HWD)	in.	30 x 19 x 17
	(cm)	(76 x 48 x 43)
Tuners fully extended	in.	35 x 19 x 17
	(cm)	(89 x 48 x 43)

TYPICAL RESPONSE CURVES (TPRD-1084)



All specifications subject to change without notice

TWDS-6008 Rev. 10/12

TPRD-1344C, 1344CM

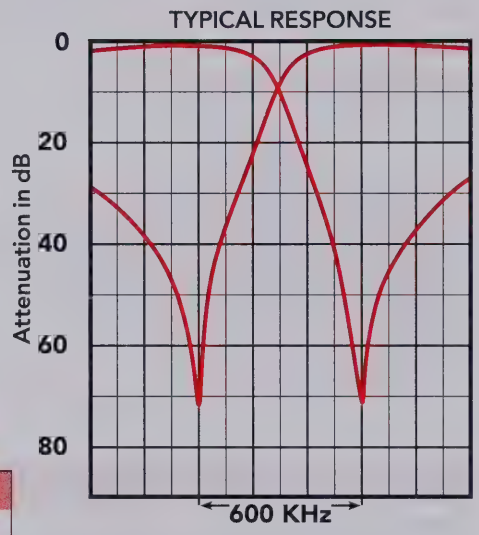
COMPACT PASS / REJECT DUPLEXER

The TPRD-1344C and 1344CM produce high performance in a compact design for the 118-136 MHz VHF Air band. These duplexers are only one-third of the size of earlier models, and deliver equivalent performance.

The TPRD-1344C/CM produces 70 dB isolation at 600 KHz, with a 350 watt power rating, and insertion loss is 1.5 dB or less. Each duplexer fits a standard 19" rack, with rack height of 5.25" and 4" respectively. The TPRD-1344CM is supplied with adjustable mounting tabs for installation in a cabinet.

TPRD-1344C

TPRD-1344CM



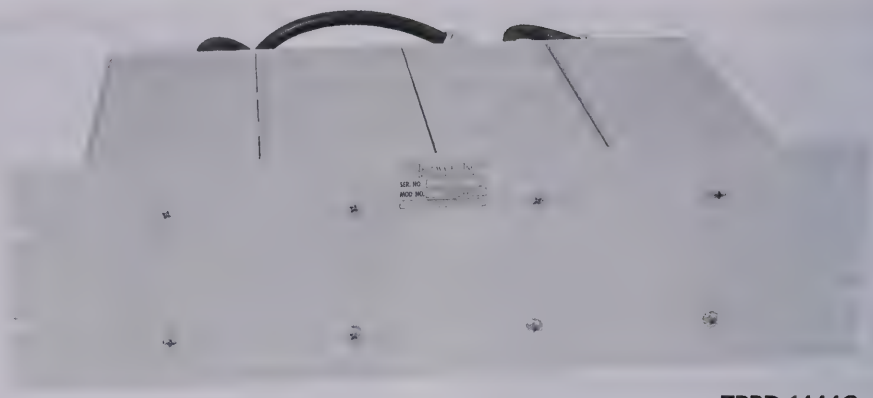
ELECTRICAL SPECIFICATIONS		
Tuning range	118-136 MHz	
Frequency separation (min)	600 KHz	
Maximum input power	350 watts	
Insertion loss TX/RX to ant.	1.5 dB	
TX noise suppression at RX (typ)	70 dB at 600 KHz	
RX isolation at TX (typ)	70 dB at 600 KHz	
VSWR (max)	1.5:1	
Temperature range	-30°C to +70°C	
Cavities	(4) - 4"	
MECHANICAL SPECIFICATIONS	**1344C**	**1344CM**
Mounting	19" Rack	19" Cabinet
Dimensions (HWD) in. (cm) (Tuners fully extended)	5.25 x 19 x 16 (13 x 48 x 41)	4 x 19 x 16 (10 x 48 x 41)
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	21 (9.5)	

TPRD-1444C, 1444CM

COMPACT PASS / REJECT DUPLEXER

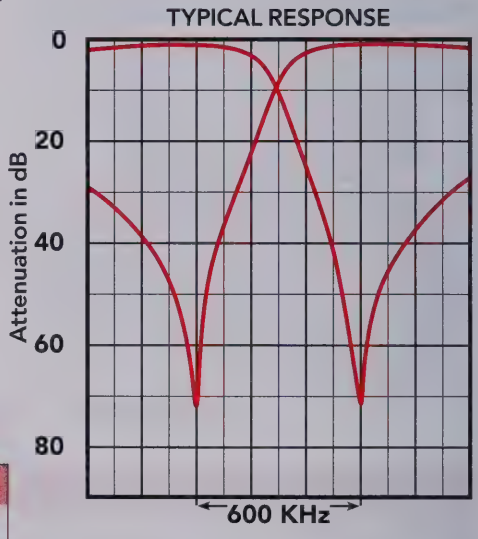
The TPRD-1444C and 1444CM produce high performance in a compact design for the 135-151 MHz VHF band. These duplexers are only one-third of the size of earlier models, and deliver equivalent performance.

The TPRD-1444C/CM produces 70 dB isolation at 600 KHz, with a 350 watt power rating, and insertion loss is 1.5 dB or less. Each duplexer fits a standard 19" rack, with rack height of 5.25" and 4" respectively. The TPRD-1444CM is supplied with adjustable mounting tabs for installation in a cabinet.



TPRD-1444C

TPRD-1444CM



ELECTRICAL SPECIFICATIONS		
Tuning range	135-151 MHz	
Frequency separation (min)	600 KHz	
Maximum input power	350 watts	
Insertion loss - TX / RX to ant.	1.5 dB	
TX noise suppression at RX (typ)	70 dB at 600 KHz	
RX isolation at TX (typ)	70 dB at 600 KHz	
VSWR (max)	1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities	(4) - 4"	
MECHANICAL SPECIFICATIONS	**1444C**	**1444CM**
Mounting	19" Rack	19" Cabinet
Dimensions (HWD) in. (cm) (Tuners fully extended)	5.25 x 19 x 16 13 x 48 x 41	4 x 19 x 16 10 x 48 x 41
Connectors	N or UHF female (opt.)	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	19.25 (8.7)	

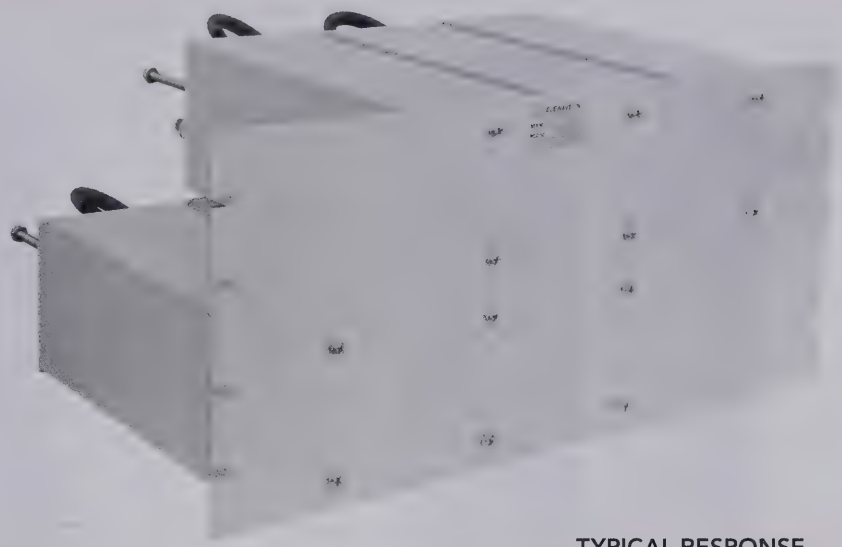
All specifications subject to change without notice

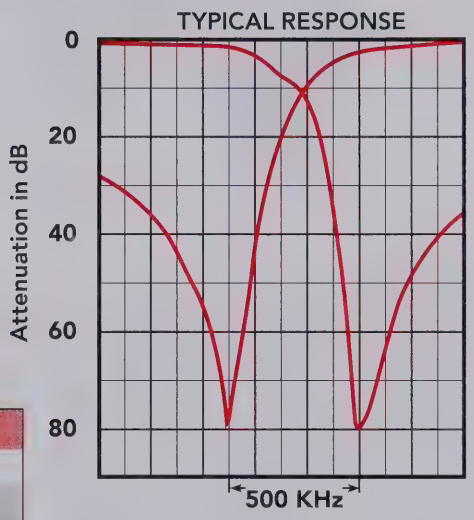
TPRD-1446C

COMPACT PASS / REJECT DUPLEXER

The TPRD-1446C offers high performance in a compact design for the 135-151 MHz VHF band. These duplexers are only one-third of the size of earlier models, and deliver equivalent performance.

Custom-extruded 4" cavities allow horizontal rack mounting. Three pass-reject sections for the transmit and receive paths provide 80 dB isolation at 500 KHz, with a 350 watt power rating, and insertion loss of 2.5 dB or less. The duplexer fits a standard 19" rack, with rack height of 8.75".





ELECTRICAL SPECIFICATIONS	
Tuning range	135-151 MHz
Frequency separation (min)	500 KHz
Maximum input power	350 watts
Insertion loss TX / RX to ant.	2.5 dB
TX noise suppression at RX (typ)	80 dB at 500 KHz
RX isolation at TX (typ)	80 dB at 500 KHz
VSWR (max)	1.5:1
Temperature range	-30°C to +70°C
Number of cavities	(6) - 4"
MECHANICAL SPECIFICATIONS	
Mounting	19" Rack
Dimensions (HWD) in. (cm) (Tuners fully extended)	8.75 x 19 x 16 22 x 48 x 40.6
Connectors	N or UHF Female
Finish	Gray acrylic enamel
Net weight lb. (kg)	37 (16.8)

TPRD-1454, 1456

BANDPASS / REJECT DUPLEXERS

TPRD-1454

TPRD-1456

Telewave TPRD-1454 and TPRD-1456 duplexers allow simultaneous operation of a transmitter and receiver into a common antenna. These pass-reject duplexers are ideal for systems with very close frequency spacing.

The Telewave TPRD-1454 has two pass-reject cavities in the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 600 KHz or more.

The TPRD-1456 has three pass-reject cavities in the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 400 KHz or more.

Because of their superior construction, these Telewave 5" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

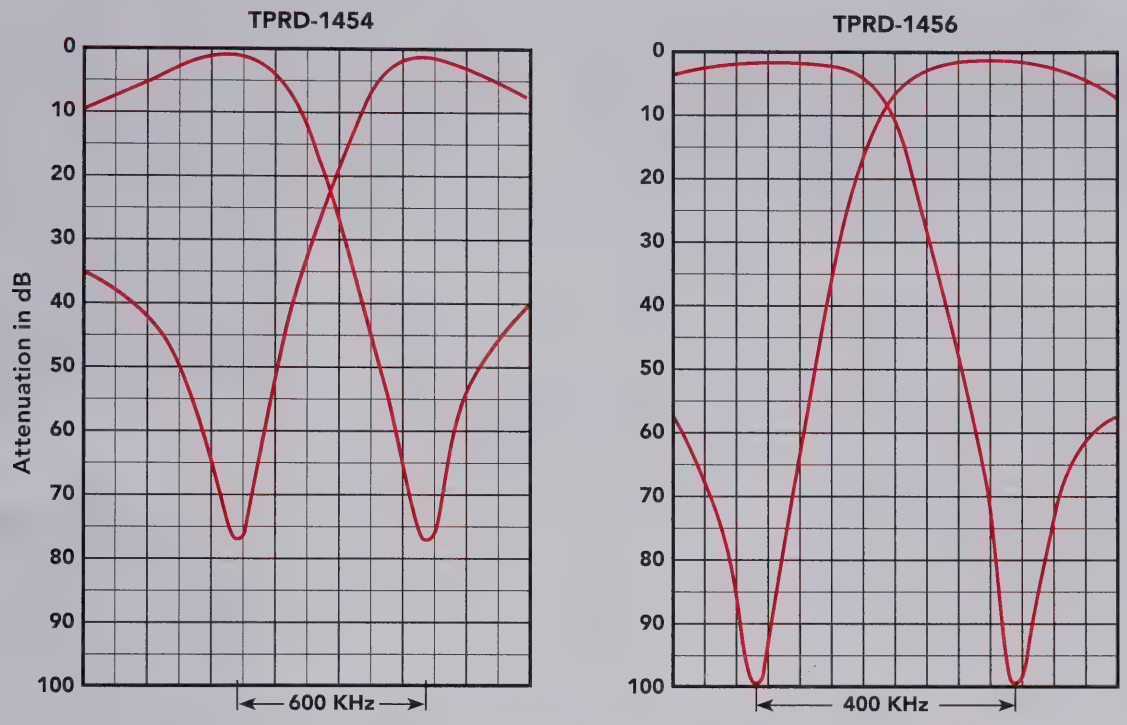
All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

The optional TBC-40 indoor cabinet completely encloses the duplexer, and protects it from dust, dirt and tampering. All connections are accessible from the top of the cabinet.

All specifications subject to change without notice

TPRD-1454, 1456

TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS	TPRD-1454	TPRD-1456
Tuning range	118-148 MHz	
Frequency separation (min)	600 KHz	400 KHz
Maximum input power	350 watts	
VSWR (max)	1.5:1	
Insertion loss: TX/RX to ant.	1.5 dB	2.0 dB
RX isolation at TX frequency	77 dB at 600 KHz	100 dB at 400 KHz
TX noise suppression at RX frequency	77 dB at 600 KHz	100 dB at 400 KHz
Temperature range	-30°C to +70°C	
Cavities	(4) 5"	(6) 5"
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm) (Including typical tuner extension)	34 x 19 x 11 (86 x 48 x 28)	34 x 19 x 11 (86 x 48 x 28)
Cavity dimensions	5" dia x 30" L	
Mounting	19" Rack or wall mount	
Connectors	N or UHF female (opt.)	
Finish	Acrylic enamel	
Net weight lb. (kg)	23 (10.4)	35 (15.6)

NOTES: Specify model number and exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

TPRD-1484, 1486

PASS-REJECT BASE STATION DUPLEXERS

The Telewave TPRD-1484 and TPRD-1486 duplexers allow simultaneous operation of a transmitter and receiver into a common antenna. These Pass-Reject duplexers are ideal for use in systems requiring maximum isolation, with close frequency spacing down to 300 KHz.

The TPRD-1484 duplexer has two, and TPRD-1486 duplexer has three pass-reject cavities each in the transmitter and receiver sections. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See graphs for typical response curves).

Telewave duplexers have ¼-inch aluminum top plates which are fully welded to the aluminum outer conductor. As a result of their superior construction, Telewave 8" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

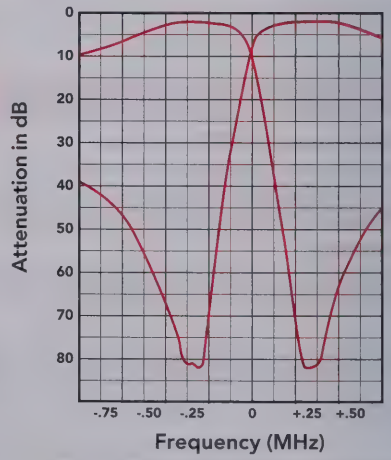
Silver-plated tuners, beryllium copper finger stock contactors, and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble-free operation.

TPRD-1486

TPRD-1484

ELECTRICAL SPECIFICATIONS		TPRD-1484	TPRD-1486
Tuning range		118-148 MHz	
Frequency separation (min)		500 KHz	300 KHz
Maximum input power		300 watts	
Insertion loss TX / RX to ant.		1.5 dB	2.2 dB
VSWR (max)		1.5:1	
Temperature range		-30°C to +70°C	
RX isolation		80 dB at ±500 KHz	100 dB at ±400 KHz
TX noise suppression		80 dB at ±500 KHz	100 dB at ±400 KHz
MECHANICAL SPECIFICATIONS			
Cavities		(4) - 8"	(6) - 8"
Mounting		19" Rack or wall mount	
Connectors		N or UHF female (opt.)	
Finish		Gray acrylic enamel	
Net weight	lb. (kg)	37 (16.8)	51 (23.1)
Dimensions (HWD)	in.	30 x 19 x 17	30 x 19 x 25
	(cm)	(76 x 48 x 43)	(76 x 48 x 63.5)
Tuners fully extended	in.	35 x 19 x 17	35 x 19 x 25
	(cm)	(89 x 48 x 43)	(59 x 48 x 63.5)

TYPICAL RESPONSE CURVES (TPRD-1484)



All specifications subject to change without notice

TWDS-6040 Rev. 7/12

TPRD-1544F
PASS-REJECT DUPLEXER

TPRD-1544F with TWX-5 spacers

The Telewave TPRD-1544F allows simultaneous operation of a transmitter and receiver into a common antenna. This pass-reject duplexer utilizes folded four-inch cavities to achieve high "Q" in a compact size.

Telewave folded cavities utilize a special construction technique and circuit design which allow a physically shorter cavity to produce nearly the same performance as a standard length cavity.

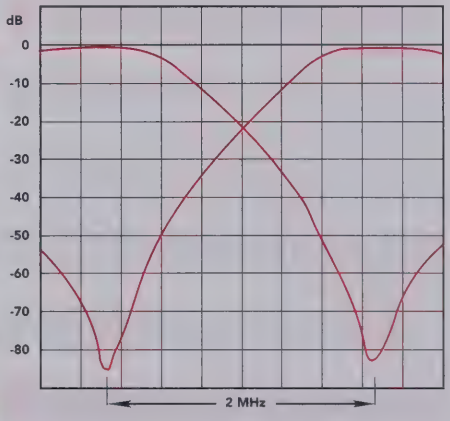
The TPRD-1544F duplexer uses two folded pass-reject cavities in the transmitter and receiver sections, for frequency spacing of 2 MHz or more. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops.

This duplexer is designed to mount horizontally on a 19" rack. Spacing brackets are available to allow mounting in a cabinet with 5" or 8" depth from the front.

Telewave duplexers feature cavities with ¼" aluminum top plates, which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, and many years of trouble free operation.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for straightforward field tuning by rotating the threaded Invar rod.

ELECTRICAL SPECIFICATIONS	
Tuning range	148-174 MHz
Frequency separation (min)	2 MHz
Maximum input power	350 watts
Insertion loss TX / RX to ant. (typ.)	1.0 dB
TX noise suppression at RX (min)	80 dB at 2 MHz
RX isolation at TX (min)	80 dB at 2 MHz
VSWR (max)	1.5:1
Temperature range	-30°C to +60°C
Number of cavities	(4) - 4"
MECHANICAL SPECIFICATIONS	
Mounting	19" Rack mount
Dimensions (HWD) in. (cm) (Tuners fully extended)	5.25 x 19 x 17 (13.3 x 48.3 x 43.2)
Connectors	N or UHF Female
Finish	Gray acrylic enamel
Net weight lb. (kg)	15 (6.8)



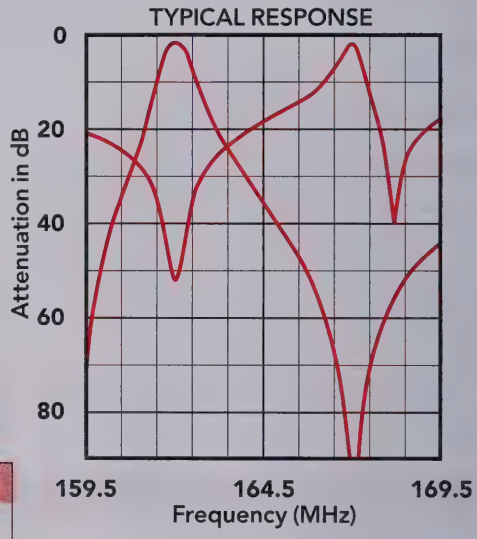
TYPICAL RESPONSE

TPRD-1543C

COMPACT PASS / REJECT DUPLEXER

The TPRD-1543C produces high performance in a compact design for the 148-174 MHz VHF band. This duplexer is less than 30% of the size of earlier models, and delivers equivalent performance.

Precise construction and high quality components results in excellent temperature stability under the most demanding conditions. The duplexer fits a standard 19" rack, with rack height of 5.25". Each duplexer is tuned and tested for maximum performance prior to shipping.



ELECTRICAL SPECIFICATIONS	
Tuning range	148-174 MHz
Frequency separation (min)	5 MHz
Maximum input power	350 watts
Insertion loss TX / RX to ant.	1.5 dB
TX noise suppression at RX (typ)	90 dB
RX isolation at TX (typ)	50 dB
VSWR (max)	1.5:1
Temperature range	-30°C to +70°C
Number of cavities	(3) - 4"
MECHANICAL SPECIFICATIONS	
Mounting	19" Rack
Dimensions (HWD) in.	5.25 x 19 x 11.5
(tuning rods fully extended) in.	5.25 x 19 x 16.5
Connectors	N or UHF female
Finish	Acrylic enamel
Net weight lb. (kg)	15 lb.

All specifications subject to change without notice

TPRD-1544C, 1544CM

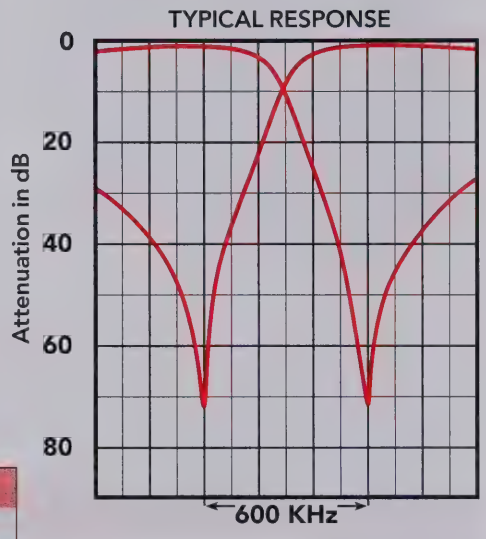
COMPACT PASS / REJECT DUPLEXER

The TPRD-1544C and 1544CM produce high performance in a compact design for the 148-174 MHz VHF band. These duplexers are less than 30% of the size of earlier models, and deliver greater isolation and power handling.

The TPRD-1544C and CM produce 70 dB isolation at 600 KHz, with 350 watt power handling, and insertion loss is 1.5 dB or less. Each duplexer fits a standard 19-inch rack, with rack height of 5.25" and 4" respectively. The TPRD-1544CM is supplied with adjustable mounting tabs for installation in a cabinet.

TPRD-1544C

TPRD-1544CM



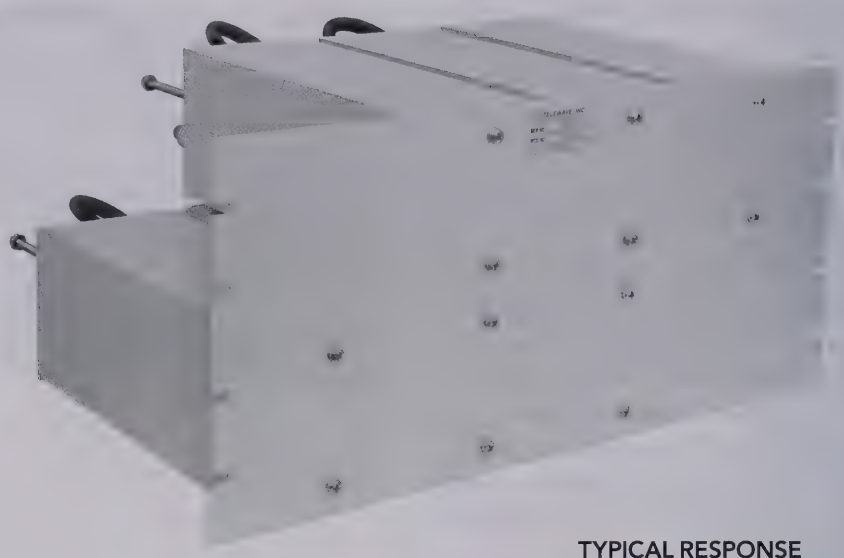
ELECTRICAL SPECIFICATIONS		
Tuning range	148-174 MHz	
Frequency separation (min)	600 KHz	
Maximum input power	350 watts	
Insertion loss TX / RX to ant.	1.5 dB	
TX noise suppression at RX (typ)	70 dB at 600 KHz	
RX isolation at TX (typ)	70 dB at 600 KHz	
VSWR (max)	1.5:1	
Temperature range	-30°C to +70°C	
Number of cavities	(4) - 4"	
MECHANICAL SPECIFICATIONS	**1544C**	**1544CM**
Mounting	19" Rack	19" Cabinet
Dimensions (HWD) in. (cm) (tuning rods fully extended)	5.25 x 19 x 15 (38.7 x 48 x 38.1)	4 x 19 x 15 (10.2 x 48 x 38.1)
Connectors	N or UHF female (opt.)	
Finish	Acrylic enamel	
Net weight lb. (kg)	18.25 (8.3)	

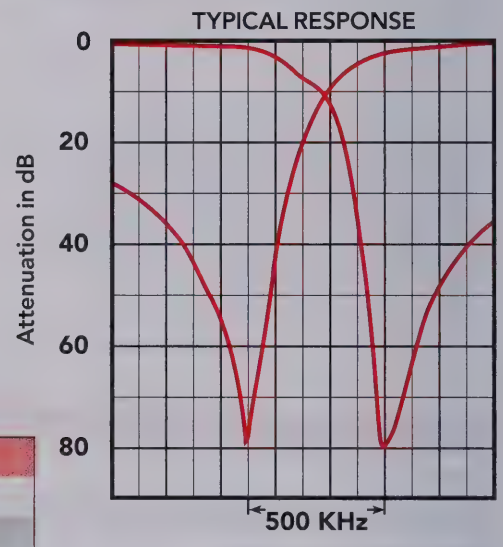
TPRD-1546C

COMPACT PASS / REJECT DUPLEXER

The TPRD-1546C offers high performance in a compact design for the 148-174 MHz VHF band.

Custom extruded 4" cavities allow horizontal rack mounting. Three pass-reject sections in the transmit and receive paths provide 80 dB isolation at 500 KHz, with a 350 watt power rating, and insertion loss of 2.5 dB or less. The duplexer fits a standard 19" rack, with rack height of 8.75".





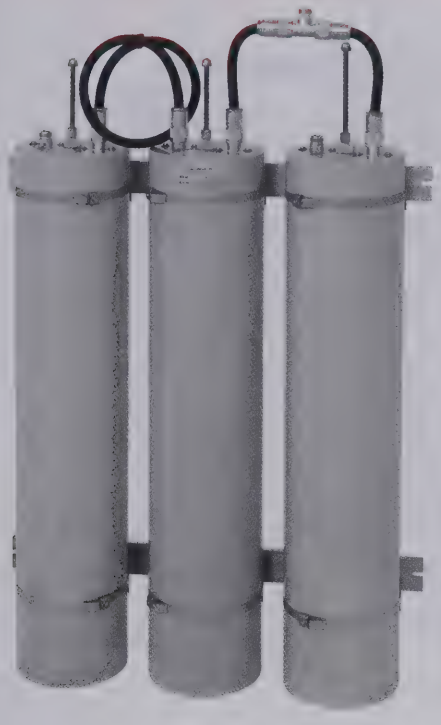
ELECTRICAL SPECIFICATIONS	
Tuning range	148-174 MHz
Frequency separation (min)	500 KHz
Maximum input power	350 watts
Insertion loss TX / RX to ant.	2.5 dB
TX noise suppression at RX (typ)	80 dB at 500 KHz
RX isolation at TX (typ)	80 dB at 500 KHz
VSWR (max)	1.5:1
Temperature range	-30°C to +70°C
Number of cavities	(6) - 4"

MECHANICAL SPECIFICATIONS	
Mounting	19" Rack mount
Dimensions (HWD) in. (cm)	8.75 x 19 x 15 (22 x 48 x 38)
Connectors	N or UHF female
Finish	Acrylic enamel
Net weight lb. (kg)	36 (16.3)

All specifications subject to change without notice

TPCD-1553, 1554, 1556

VHF BANDPASS DUPLEXERS



TPCD-1553

TPCD-1554

TPCD-1556

The Telewave TPCD-1553, TPCD-1554, and TPCD-1556 allow simultaneous operation of a transmitter and receiver into a common antenna. These bandpass duplexers are ideal in frequency congested areas where protection is needed from surrounding transmitters, and where maximum transmitter sideband filtering is necessary.

Because of their superior construction, these Telewave 5" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection. Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

The TPCD-1553 includes two bandpass cavities in the transmitter section. It is recommended when frequency spacing between transmitter and receiver is 5 MHz or more.

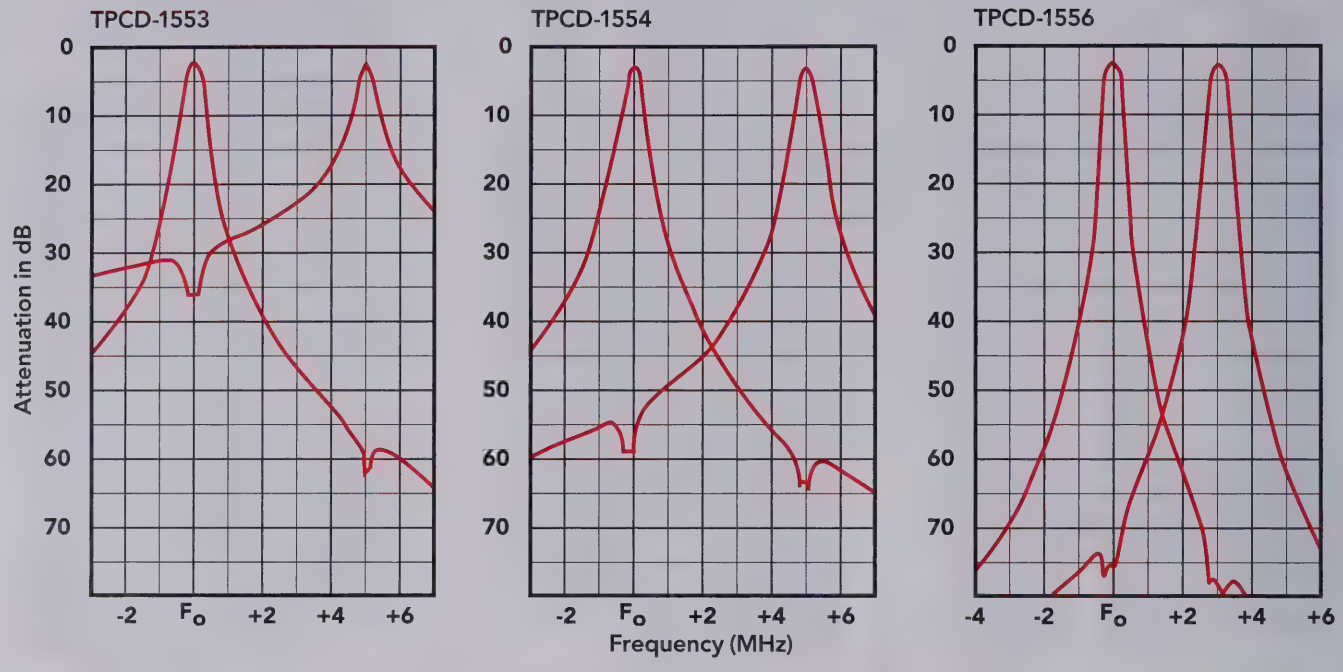
The TPCD-1554 has two bandpass cavities in both the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with a spacing of 4 MHz or more.

The TPCD-1556 has three bandpass cavities in both the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with spacing of 2 MHz or more.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

TPCD-1553, 1554, 1556

TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS	TPCD-1553	TPCD-1554	TPCD-1556
Tuning range		148-174 MHz	
Cavities	(3) - 5"	(4) - 5"	(6) - 5"
Frequency separation (min)	5 MHz	4 MHz	2 MHz
Maximum input power		350 watts	
VSWR (max)		1.5:1	
Insertion loss TX / RX to ant.	1.0 dB	1.0 dB	1.5 dB
RX isolation at TX	35 dB at 5 MHz	55 dB at 4 MHz	63 dB at 2 MHz
		58 dB at 5 MHz	75 dB at 3 MHz
TX noise suppression at RX	62 dB at 5 MHz	58 dB at 4 MHz	66 dB at 2 MHz
		63 dB at 5 MHz	77 dB at 3 MHz
Temperature range		-30°C to +70°C	
MECHANICAL SPECIFICATIONS			
Dimensions (HWD) in.	28 x 19 x 6	28 x 19 x 11	28 x 19 x 11
(Tuners fully extended) (cm)	(71 x 48 x 15)	(71 x 48 x 28)	(71 x 48 x 28)
Connectors		N or UHF Female	
Finish		Gray acrylic enamel	
Net weight lb. (kg)	15 (7)	19 (8.6)	27 (12.3)

NOTES: Specify model number and exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

All specifications subject to change without notice

TPRD-1554, 1556

BANDPASS / REJECT DUPLEXERS

TPRD-1554

TPRD-1556

Telewave TPRD-1554 and TPRD-1556 duplexers allow simultaneous operation of a transmitter and receiver into a common antenna. These pass-reject duplexers are ideal for systems with very close frequency spacing.

The Telewave TPRD-1554 has two pass-reject cavities in the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 600 KHz or more.

The TPRD-1556 has three pass-reject cavities in the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 400 KHz or more.

Because of their superior construction, these Telewave 5" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

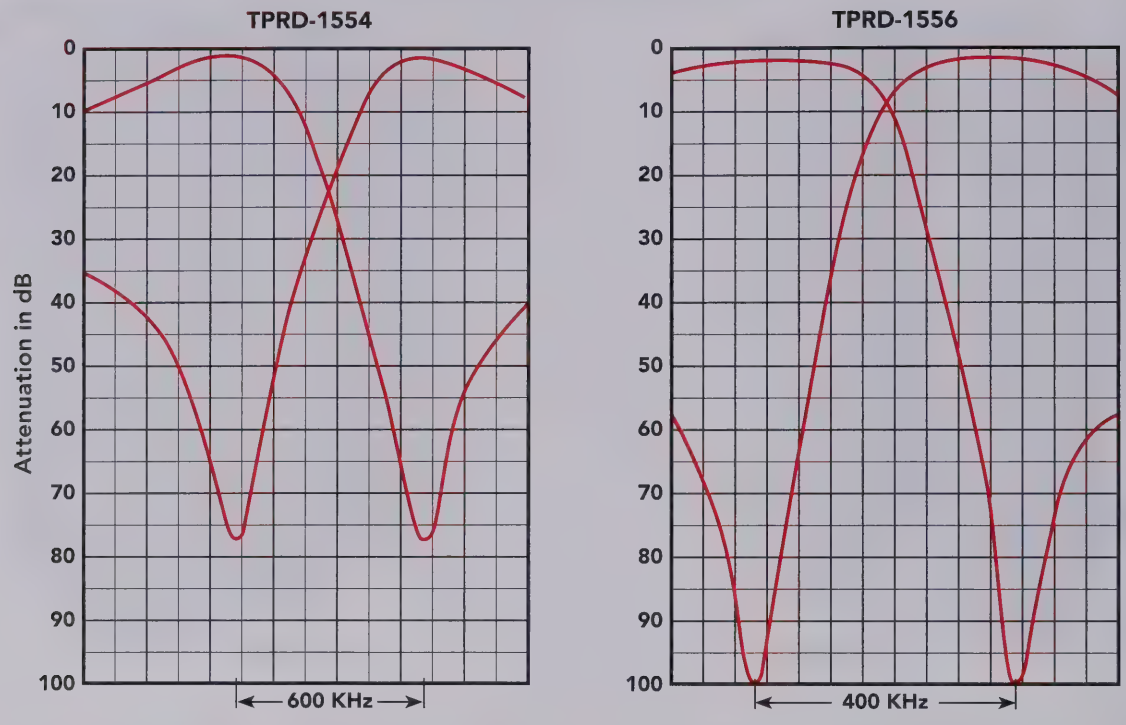
Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

The optional TBC-40 indoor cabinet completely encloses the duplexer, and protects it from dust, dirt and tampering. All connections are accessible from the top of the cabinet.

TPRD-1554, 1556

TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS	TPRD-1554	TPRD-1556
Tuning range	144-174 MHz	
Frequency separation (min)	600 KHz	400 KHz
Maximum input power	350 watts	
VSWR (max)	1.5:1	
Insertion loss: TX/RX to ant.	1.5 dB	2.0 dB
RX isolation at TX frequency	77 dB at 600 KHz	100 dB at 400 KHz
TX noise suppression at RX frequency	77 dB at 600 KHz	100 dB at 400 KHz
Temperature range	-30°C to +70°C	
Cavities	(4) 5"	(6) 5"
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm) (Including typical tuner extension)	28 x 19 x 11 (71.1 x 48 x 28)	28 x 19 x 11 (71.1 x 48 x 28)
Cavity dimensions	5" dia x 23" L	
Mounting	19" Rack or wall mount	
Connectors	N or UHF female (opt.)	
Finish	Acrylic enamel	
Net weight lb. (kg)	19 (8.6)	27 (12.3)

NOTES: Specify model number and exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

All specifications subject to change without notice

TPRD-1566

BANDPASS - BANDREJECT DUAL NOTCH DUPLEXER

The Telewave TPRD-1566 allows simultaneous operation of a transmitter and receiver into a common antenna. This pass/reject duplexer has low insertion loss, and is ideal for systems with close frequency separation.

The TPRD-1566 has three pass/reject cavities in both the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 300 KHz or more. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

Because of their superior construction, these Telewave 6" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

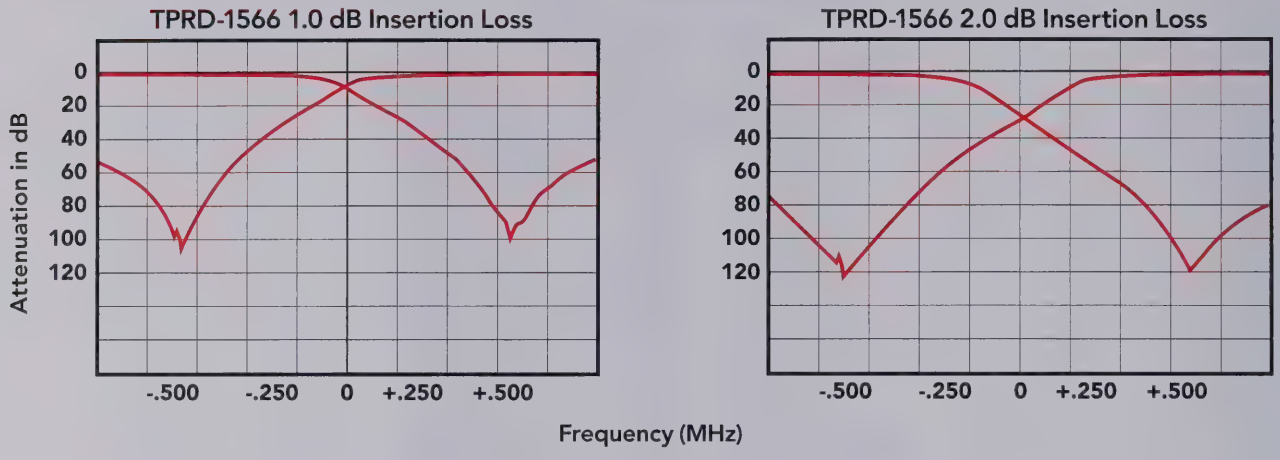
Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

The optional TBC-40 indoor cabinet completely encloses the duplexer, and protects it from dust, dirt and tampering. All connections are accessible from the top of the cabinet.

TPRD-1566

TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS		
Tuning range	148-174 MHz	
Number of cavities	(6) - 6"	
Frequency separation (min)	300 KHz	
Maximum input power	350 watts	
VSWR (max)	1.5:1	
RX isolation at TX frequency	100 dB at 500 KHz	Insertion loss - 1.0 dB
TX noise suppression at RX	100 dB at 500 KHz	Insertion loss - 1.0 dB
RX isolation at TX frequency	115 dB at 500 KHz	Insertion loss - 2.0 dB
TX noise suppression at RX	115 dB at 500 KHz	Insertion loss - 2.0 dB
Temperature range	-30˚C to +70˚C	
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm) Tuners fully extended in. (cm)	23 x 19 x 14 (58.4 x 48.3 x 35.6) 28 x 19 x 14 (71 x 48.3 x 35.6)	
Connectors	N or UHF Female (opt.)	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	55 (25)	

NOTES: Specify model number and exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

All specifications subject to change without notice

TPRD-1584, 1586

PASS-REJECT BASE STATION DUPLEXER

Telewave models TPRD-1584 and TPRD-1586 allow simultaneous operation of a transmitter and receiver into a common antenna. These Pass-Reject duplexers are an ideal choice for systems requiring maximum isolation, with close frequency spacing down to 300 KHz.

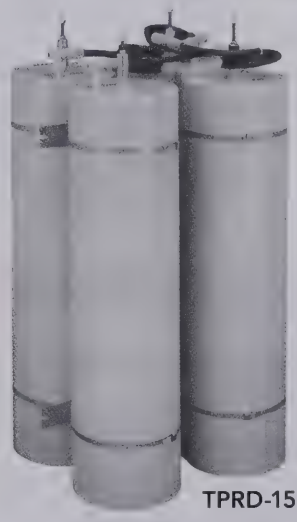
The TPRD-1584 has two, and the TPRD-1586 has three Pass-Reject cavities each in the transmitter and receiver sections. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See graph for typical response curves.)

Telewave duplexers have ¼-inch aluminum top plates which are fully welded to the aluminum outer conductor.

As a result of their superior construction, Telewave 8" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

Silver-plated tuners, beryllium copper finger stock contactors, and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble-free operation.

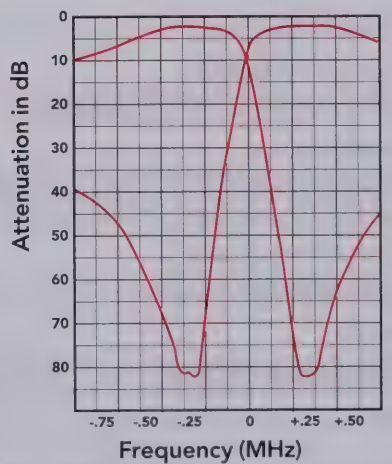
TPRD-1586



TPRD-1584

ELECTRICAL SPECIFICATIONS		TPRD-1584	TPRD-1586
Tuning range		148-174 MHz	
Frequency separation (min)		500 KHz	300 KHz
Maximum input power		350 watts	
Insertion loss TX / RX to ant.		1.5 dB	2.2 dB
VSWR (max)		1.5:1	
Temperature range		-30°C to +70°C	
RX isolation		80 dB at ±500 KHz	100 dB at ±400 KHz
TX noise suppression		80 dB at ±500 KHz	100 dB at ±400 KHz
MECHANICAL SPECIFICATIONS			
Cavities		(4) - 8"	(6) - 8"
Mounting		19" Rack mount	
Connectors		N or UHF female (opt.)	
Finish		Gray acrylic enamel	
Net weight	lb. (kg)	33 (15)	46.5 (21)
Dimensions (HWD)	in. (cm)	23.5 x 19 x 17 (60 x 48 x 43)	23.5 x 19 x 25 (60 x 48 x 63.5)
Tuners fully extended	in. (cm)	28 x 19 x 17 (71 x 48 x 43)	28 x 19 x 25 (71 x 48 x 63.5)

TYPICAL RESPONSE (TPRD-1584)



TPRD-2254

BANDPASS / REJECT DUPLEXER

The Telewave TPRD-2254 allows simultaneous operation of a transmitter and receiver into a common antenna. This pass-reject duplexer has low insertion loss, and is ideal for systems with close frequency separation.

The TPRD-2254 has two pass-reject cavities in the transmitter and receiver sections. This duplexer is designed for transmitters and receivers with frequency spacing of 1 MHz or more. Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops.

Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

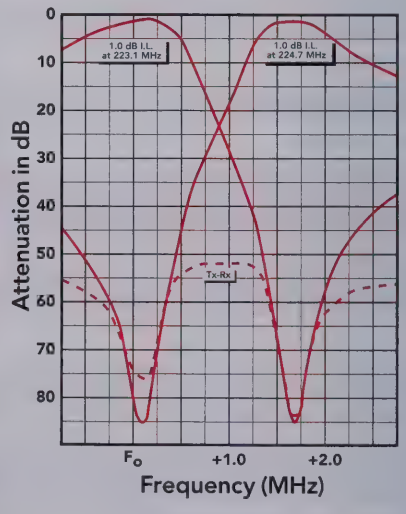
The optional TBC-40 indoor cabinet completely encloses the duplexer, and protects it from dust, dirt and tampering. All connections are accessible from the top of the cabinet.

TPRD-2254

ELECTRICAL SPECIFICATIONS	
Tuning range	200-300 MHz
Frequency separation (min)	1 MHz
Maximum input power	350 watts
Insertion loss TX / RX to ant.	1.0 dB
TX noise suppression at RX (min)	84 dB at 1.5 MHz
RX isolation at TX (min)	85 dB at 1.5 MHz
VSWR (max)	1.5:1
Temperature range	-30°C to +70°C
Number of cavities	(4) - 5"
MECHANICAL SPECIFICATIONS	
Mounting	19" Rack mount
Dimensions (HWD) in. (cm) (Tuners fully extended)	23 x 19 x 11 (58 x 48 x 28)
Cavity dimensions	5" dia x 18" L
Connectors	N or UHF Female
Finish	Gray acrylic enamel
Net weight lb. (kg)	17 (7.7)

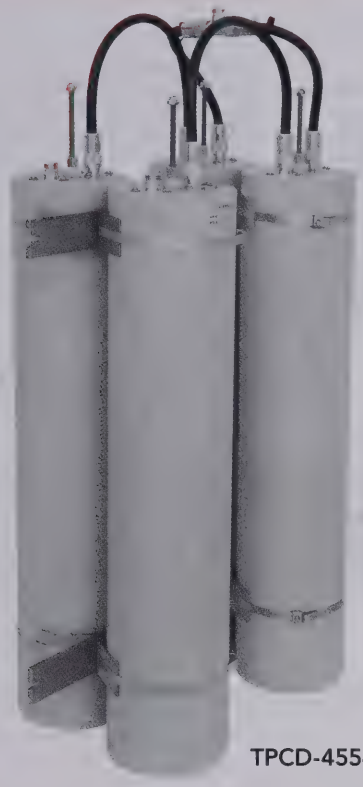
NOTES: Specify exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

TYPICAL DUPLEX RESPONSE



All specifications subject to change without notice

TPCD-4554, 4556
UHF BANDPASS DUPLEXERS



TPCD-4554

TPCD-4556

The Telewave TPCD-4554 and TPCD-4556 duplexers allow simultaneous operation of a transmitter and receiver into a common antenna. These bandpass duplexers have low insertion loss, and are ideal in frequency congested areas where protection is needed from surrounding transmitters, and where maximum transmitter sideband filtering is necessary.

Because of their superior construction, these Telewave 5" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

The TPCD-4554 has two, and the TPCD-4556 has three, ¾-wave bandpass cavities in the transmitter and receiver sections. These duplexers are designed for transmitters and receivers with frequency spacing of 5 MHz or more.

Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

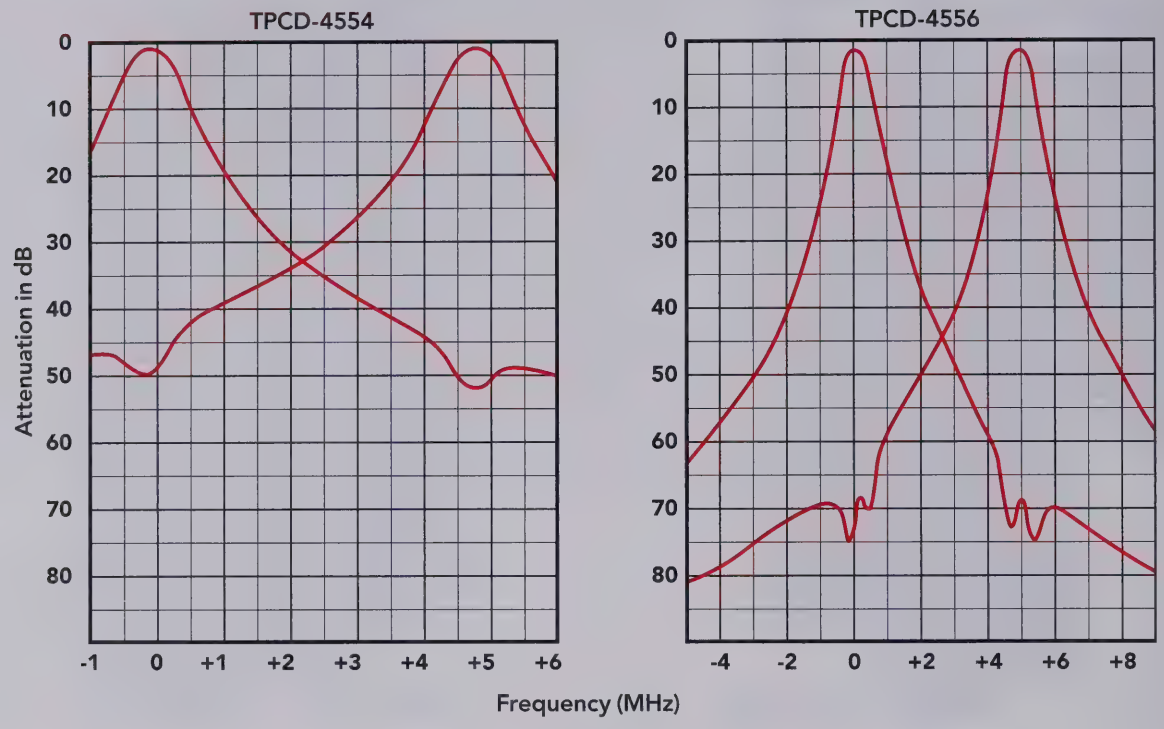
Telewave duplexers have ¼-inch aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping.

If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

TPCD-4554, 4556

TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS	TPCD-4554	TPCD-4556
Tuning range	400-512 MHz	
Number of cavities	(4) - 5"	(6) - 5"
Frequency separation (min)	5 MHz	
Maximum input power	350 watts	
VSWR (max)	1.5:1	
Insertion loss TX / RX to ant.	1.0 dB	1.5 dB
RX isolation at TX frequency	50 dB at 5 MHz	75 dB at 5 MHz
TX noise suppression at RX frequency	52 dB at 5 MHz	75 dB at 5 MHz
Temperature range	-30°C to +70°C	
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm) (Tuners fully extended)	28 x 19 x 11 (74 x 48 x 28)	
Connectors	N or UHF female	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	19 (8.6)	27 (12.3)

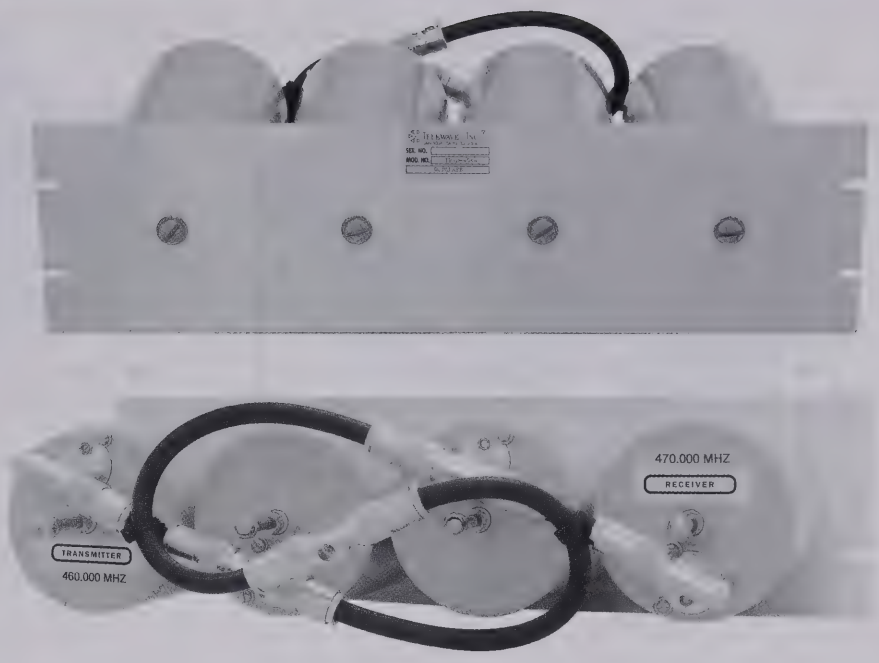
NOTES: Specify exact transmitter and receiver frequencies when ordering.
All models are built on 19" rails for rack or wall mounting.

All specifications subject to change without notice

TPRD-4544, 4744
PASS / REJECT DUPLEXER

The Telewave TPRD-4544/4744 Base Station duplexers provide high performance with an innovative design. By using two TPRC-4504 or 4704 Pass / Reject cavities in the transmitter and receiver path, these duplexers provide maximum TX to RX protection in the most severe RF environments.

The design of these duplexers provides a bandpass characteristic with minimum insertion loss, while also providing maximum TX to RX protection. Adjustable coupling optimizes the required attenuation for ideal RX performance. All cavity inputs are electrically shorted to ground for maximum static and noise protection.



RG-214 Mil-Spec cable is used for all interconnections to ensure long life, and lowest insertion loss with maximum power handling capability. Heavy-duty materials are used in construction of these duplexers, including silver-plated tuners and beryllium copper fingerstock contactors, assuring high "Q" performance with no problems due to dissimilar metals. Tuning is simple and remains stable from -30°C to +70°C, thanks to the threaded Invar rod.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. No further adjustments should be required.

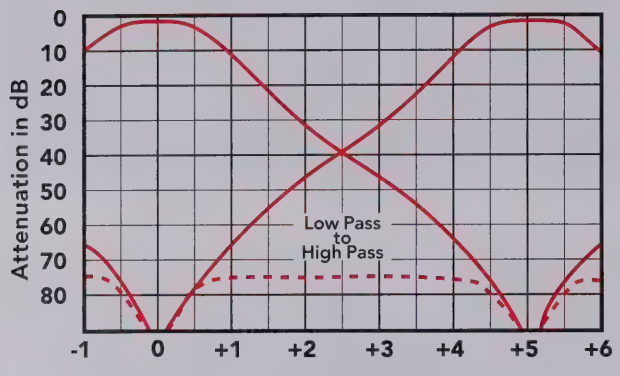
The positive locking mechanism allows for simple field tuning if frequency changes are required.

TPRD-4544/4744 duplexers mount on a 19" standard rack, with panel height of 5.25". Power handling is 250 watts. Receiver desense protection is at least 90 dB, and TX sideband suppression is at least 75 dB.

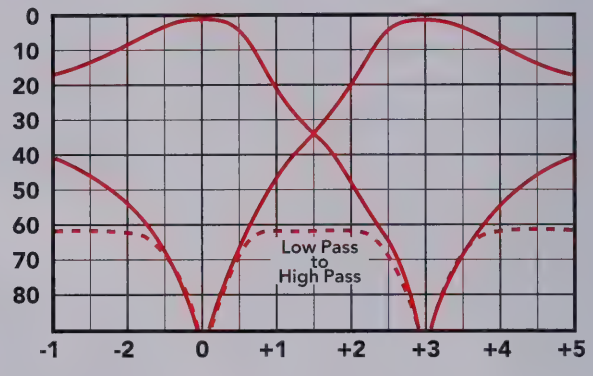
With TX to RX spacing of 3 MHz or more, this duplexer can also combine two transmitters into one antenna, or feed two receivers. For spacing less than 3 MHz, please contact Telewave for assistance.

TPRD-4544, 4744

TPRD-4544 RESPONSE
AT 5 MHz SEPARATION



TPRD-4744 RESPONSE
AT 3 MHz SEPARATION



Frequency (MHz)

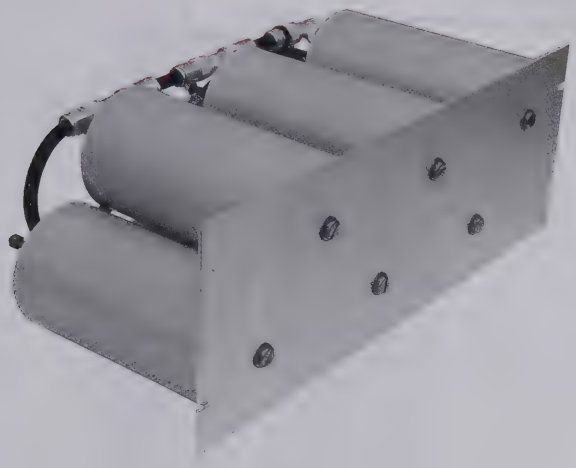
SPECIFICATIONS	TPRD-4544	TPRD-4744
Frequency range	400-470 MHz	470-512 MHz
TX / RX separation (min)	5 MHz	3 MHz
ELECTRICAL SPECIFICATIONS		
Maximum input power	250 watts	
Insertion loss (TX & RX to Antenna)	1.0 dB	
TX noise suppression at RX frequency	90 dB	
RX attenuation at TX frequency	90 dB	
Isolation TX to RX (min) **5** MHz separation	75 dB	
3 MHz separation	60 dB	
VSWR (max)	1.5:1	
Temperature range	-30˚C to +70˚C	
MECHANICAL SPECIFICATIONS		
Number of cavities	(4) - 4" Dia. x 8" L	
Dimensions (HWD) in. (cm)	5.25 x 19 x 12 (13.3 x 48 x 30.5)	
Mounting	19" Panel	
Connector termination	N Female	
Finish	Gray acrylic enamel	
Net weight lb. (kg)	10 (4.5)	
Shipping weight lb. (kg)	15 (6.8)	

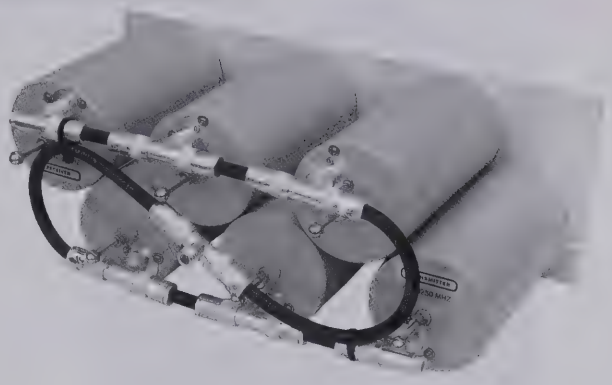
NOTE: Exact transmitter and receiver frequencies must be specified when ordering.

All specifications subject to change without notice

TPRD-4546

UHF BANDPASS / BANDREJECT DUPLEXER





The Telewave TPRD-4546 UHF duplexer allows simultaneous operation of a transmitter or combiner and receiver into a common antenna. This band-pass/ band-reject duplexer provides maximum TX-to-RX isolation with minimum insertion loss. Six 4" high "Q" cavities in a pass/reject configuration provide better isolation with close frequency spacing than an equivalent bandpass-only duplexer.

The TPRD-4546 can also be configured for at least 1.2 MHz pass and reject bandwidth with rated attenuation.

The superior construction of Telewave duplexers allows the highest possible rejection of transmitter spurious radiation and noise, providing maximum protection for the receiver system.

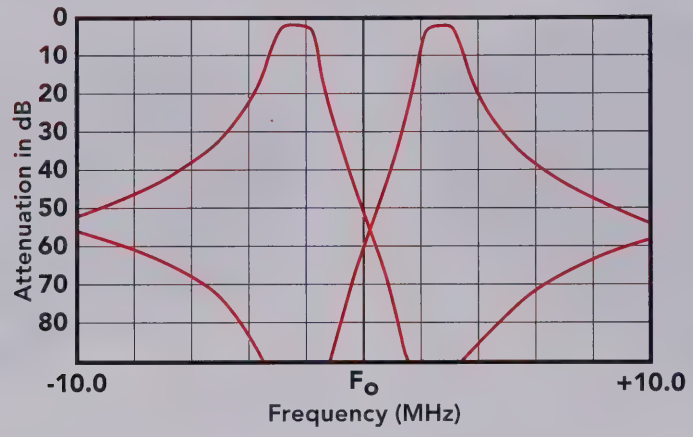
Heavy-duty materials are used throughout to insure top performance and long service. Each cavity is constructed with a ¼" aluminum top plate which is fully welded to the cavity body.

RG-214 Mil-Spec cable is used for the interconnect, and temperature stability is maintained by the use of a threaded Invar tuning rod. Tuners are all silver-plated, and sliding contacts are manufactured from beryllium copper fingerstock.

The TPRD-4546 is rack mounted on a 7" x 19" panel. Selectivity and insertion loss are adjustable as required. All duplexers are tuned and tested with customer specified frequencies prior to shipping, and no further adjustment should be required before installation.

TPRD-4546

TYPICAL RESPONSE



ELECTRICAL SPECIFICATIONS	
Frequency range	400-512 MHz
Frequency separation (min)	3 MHz
Pass / reject bandwidth (typ)	1.2 MHz
Maximum input power	250 watts
Insertion loss at pass band (TX and RX)	1.75 dB typ. / 2.0 dB max
TX attenuation at RX band (typ)	95 dB
RX attenuation at TX Band (typ)	95 dB
TX to RX Attenuation at 3 MHz (min)	85 dB
TX to RX Attenuation at 5 MHz (min)	90 dB
Impedance / VSWR (max)	50 ohms / 1.5:1
Temperature range	-30°C to +70°C
MECHANICAL SPECIFICATIONS	
Number of cavities	(6) - 4" Dia. x 8" L
Dimensions (HWD) in. (cm)	7 x 19 x 11 (17.8 x 48.3 x 28)
Mounting	19" Panel
Connectors	N Female
Panel finish	Clear alodine
Cavity finish	Gray enamel
Net weight lb. (kg)	16 (7.3)
Shipping weight lb. (kg)	19.5 (8.9)

NOTE: Exact transmitter and receiver frequencies must be specified when ordering.

All specifications subject to change without notice

TPRD-4554, 4556

PASS / REJECT DUPLEXERS

TPRD-4554

TPRD-4556

Telewave TPRD-4554 and TPRD-4556 duplexers allow simultaneous operation of a transmitter and receiver into a common antenna. These pass-reject duplexers are ideal for systems with very close frequency spacing of 1 MHz or more.

The Telewave TPRD-4554 has two ¾-wave pass-reject cavities in the transmitter and receiver sections. The TPRD-4556 has three ¾-wave pass-reject cavities in the transmitter and receiver sections for additional isolation.

Because of their superior construction, these Telewave 5" cavity duplexers achieve greater rejection of transmitter noise and spurious radiation, providing excellent receiver protection.

Telewave duplexers have ¼" aluminum top plates which are fully welded to the aluminum outer conductor. Silver-plated tuners, beryllium copper finger stock contactors and threaded Invar rods assure maximum temperature stability, higher "Q", and many years of trouble free operation.

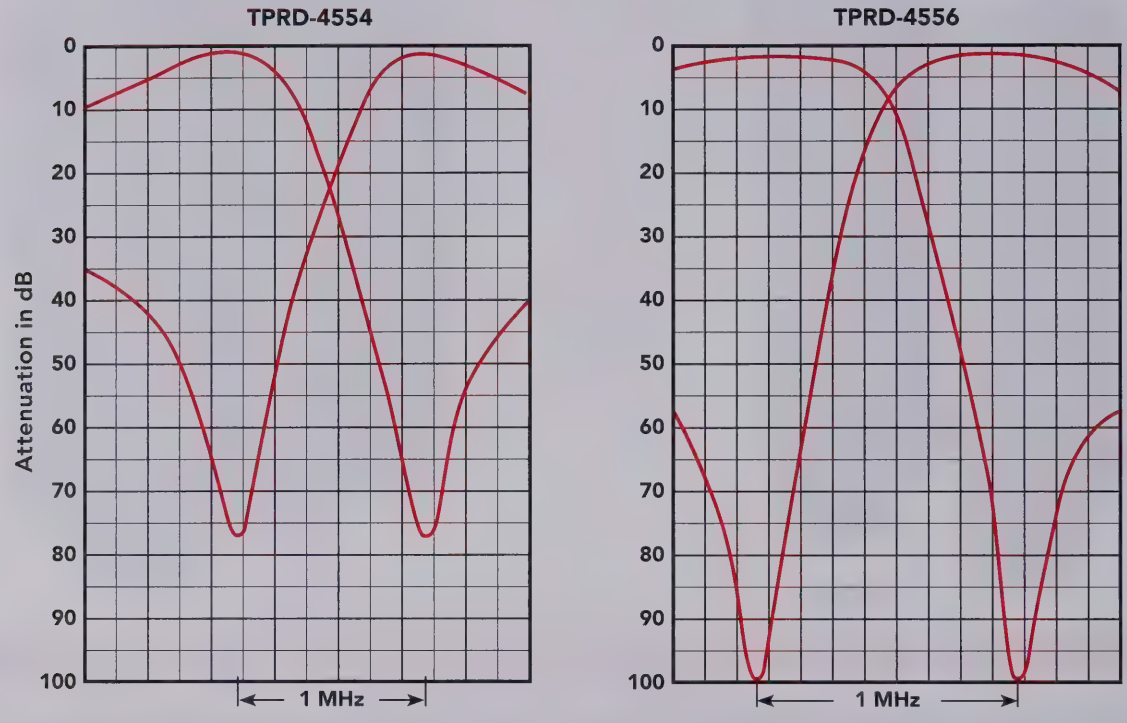
Selectivity and insertion loss may be adjusted by rotating the calibrated connector loops. (See next page for typical response curves.)

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. If frequency changes are required, the positive locking mechanism allows for easy field tuning by rotating the threaded Invar rod.

The optional TBC-40 indoor cabinet completely encloses the duplexer, and protects it from dust, dirt and tampering. All connections are accessible from the top of the cabinet.

TPRD-4554, 4556

TYPICAL DUPLEX RESPONSE



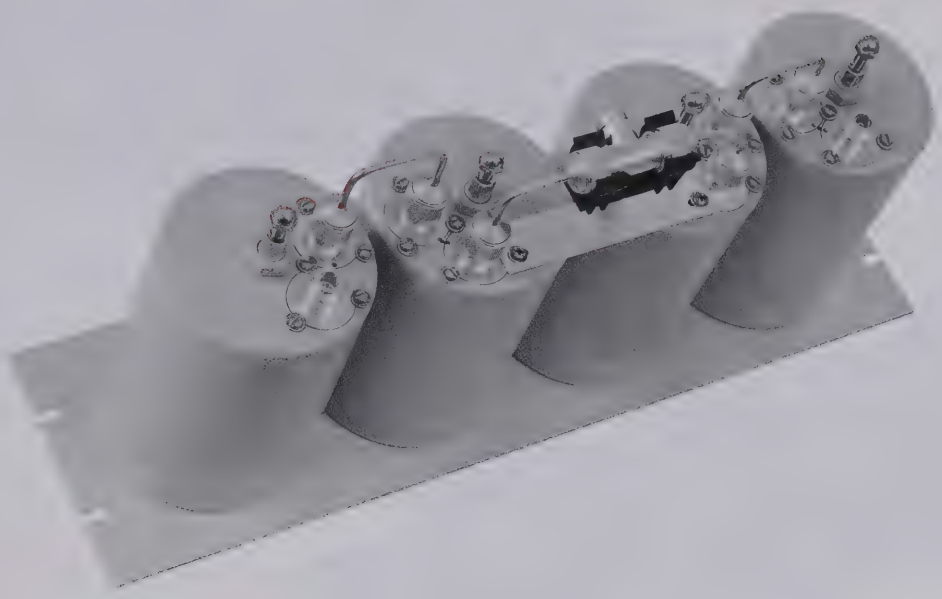
ELECTRICAL SPECIFICATIONS	TPRD-4554	TPRD-4556
Tuning range	400-512 MHz	
Frequency separation (min)	1 MHz	
Maximum input power	350 watts	
VSWR (max)	1.5:1	
Insertion loss TX/RX to ant.	1.5 dB	2.3 dB
RX isolation at TX frequency	80 dB at 1 MHz	95 dB at 1 MHz
TX noise suppression at RX frequency	80 dB at 1 MHz	95 dB at 1 MHz
Temperature range	-30°C to +70°C	
Cavities	(4) 5"	(6) 5"
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm) (Tuners fully extended)	28 x 19 x 11 (71.1 x 48 x 28)	28 x 19 x 11 (71.1 x 48 x 28)
Mounting	19" Rack or wall mount	
Connectors	N or UHF female (opt.)	
Finish	Acrylic enamel	
Net weight lb. (kg)	19 (8.6)	27 (12.3)

Specify model number and exact transmitter and receiver frequencies when ordering.

All specifications subject to change without notice

TTPD-7644

BANDPASS / BANDREJECT DUPLEXER



The Telewave TTPD-7644 Base Station Duplexer is designed specifically for the 763-869 MHz Public Safety frequency band. Four Bandpass / Band-Reject cavities utilize an exclusive Telewave coupling technique to provide a true bandpass response, while rejecting a specified frequency band.

Maximum transmitter-to-receiver protection is achieved across the full transmitter and receiver bands, with very low insertion loss.

The TTPD-7644 is a compact, rack mounted duplexer on a 5.25" x 19" panel, with a power rating of 650 watts. Heavy duty materials including ¼-inch top and bottom plates add to the rugged design of this duplexer.

All connectors and tuners are silver-plated, and beryllium copper finger stock contactors assure long life, high "Q" performance, and mechanical stability.

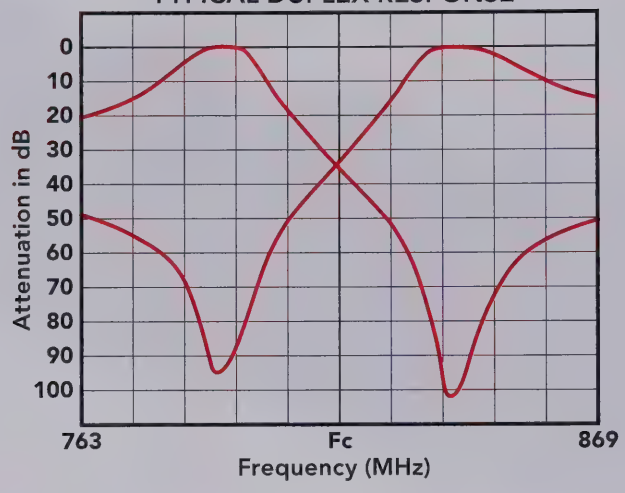
Solid copper semi-rigid cable and non-ferromagnetic materials virtually eliminate internal intermod generation.

A threaded Invar tuning rod and temperature compensator provide frequency stability across the full temperature range. All cavity inputs are heavily grounded for greatest static and lightning protection.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism makes field-tuning simple if frequency changes are necessary.

TTPD-7644

TYPICAL DUPLEX RESPONSE



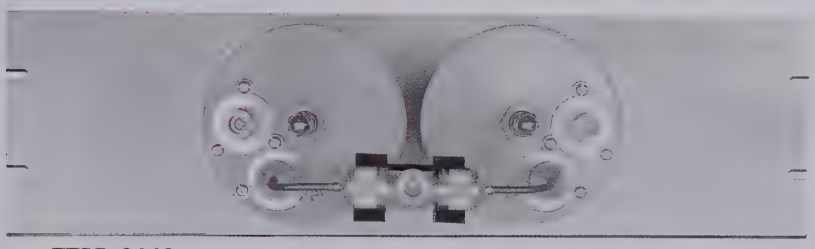
ELECTRICAL SPECIFICATIONS	
Frequency range	763-869 MHz
Frequency separation (min)	30 MHz (764-806 MHz) / 45 MHz (806-869 MHz)
Maximum input power	650 watts
TX or RX pass bandwidth	5 MHz
Insertion loss at pass bandwidth	
TX (high frequency)	0.5 dB max / 0.35 dB (typ)
RX (low frequency)	0.7 dB max / 0.5 dB (typ)
TX attenuation at RX band (min)	90 dB
RX attenuation at TX band (min)	90 dB
TX-to-RX attenuation (min)	80 dB
VSWR, ref. to 50 ohms (max)	1.5:1
Temperature range	-30°C to +70°C
Number of cavities	4
MECHANICAL SPECIFICATIONS	
Dimensions (HWD) in. (cm)	5.25 x 19 x 11 (13 x 48 x 28)
Mounting	19" Panel
Connectors	N Female
Finish	Acrylic enamel
Net weight lbs (kg)	8.25 (3.7)
Shipping weight lbs (kg)	13 (5.9)

Specify exact transmitter and receiver frequencies when ordering.

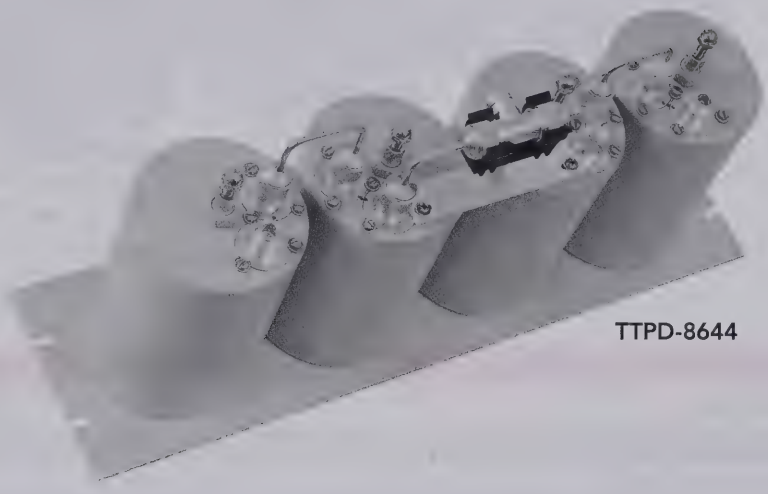
All specifications subject to change without notice

TTPD-8642, TTPD-8644

BANDPASS / BAND-REJECT DUPLEXERS



TTPD-8642



TTPD-8644

The Telewave TTPD-8642 and TTPD-8644 Base Station duplexers are designed for the 806-960 MHz frequency band. Bandpass / Band-Reject cavities utilize an exclusive Telewave coupling technique to provide a true bandpass response, while rejecting a specified frequency band.

Maximum transmitter-to-receiver protection is achieved across the full transmitter and receiver bands, with very low insertion loss.

The TTPD-8642 and TTPD-8644 are compact, rack mounted duplexers on a 5.25" x 19" panel, with a power rating of 350 and 650 watts. Heavy duty materials which include ¼-inch top and bottom plates add to the rugged design of these duplexers.

All connectors and tuners are silver-plated, and beryllium copper finger stock contactors assure long life, high "Q" performance, and mechanical stability.

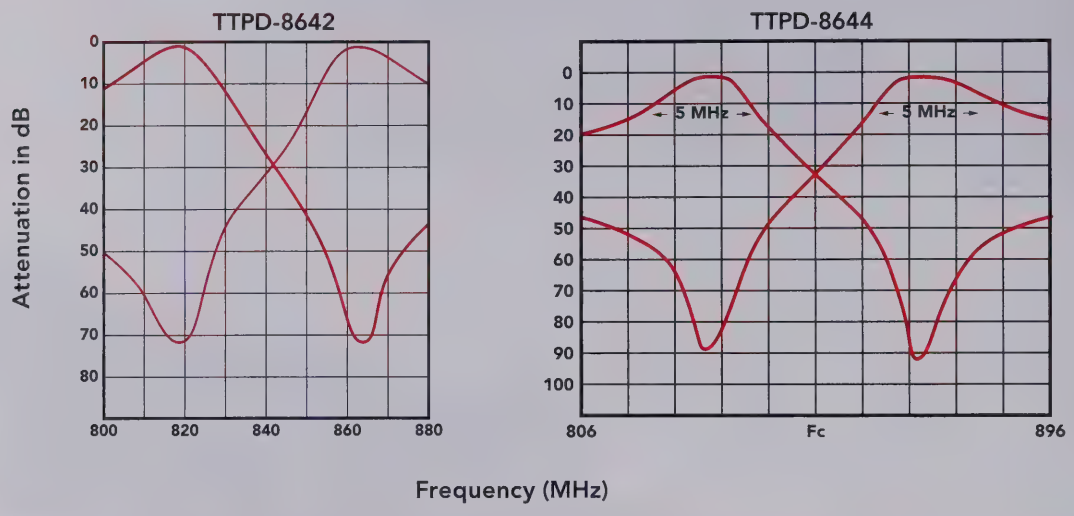
Solid copper semi-rigid cable and non-ferromagnetic materials virtually eliminate internal intermod generation

A threaded Invar tuning rod and temperature compensator provide frequency stability across the full temperature range. All cavity inputs are heavily grounded for greatest static and lightning protection.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism makes field-tuning simple if frequency changes are necessary.

TTPD-8642, TTPD-8644

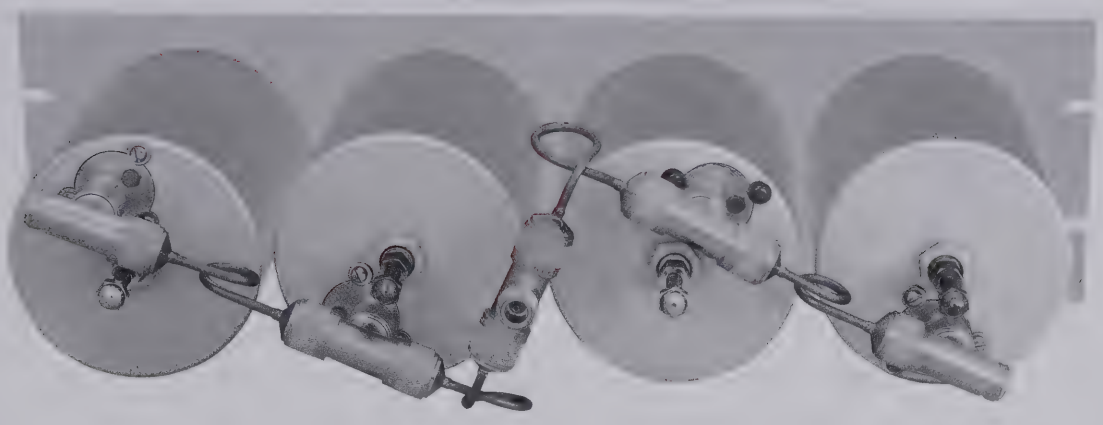
TYPICAL DUPLEX RESPONSE



ELECTRICAL SPECIFICATIONS	TTPD-8642	TTPD-8644
Frequency range	806-960 MHz	
Frequency separation (min)	45 MHz	
Maximum input power	350 watts	650 watts
TX or RX pass bandwidth	5 MHz	
Insertion loss (TX/RX to ant., typ)	0.5 dB	0.5 dB
TX (high frequency)	0.5 dB max / 0.35 dB typ.	
RX (low frequency)	0.7 dB max / 0.5 dB typ.	
TX noise suppression at RX (min)	70 dB	85 dB
RX attenuation at TX (min)	70 dB	85 dB
TX-RX isolation at 45 MHz (min)	70 dB	85 dB
TX-to-RX attenuation (min)	75 dB	
VSWR (max)	1.5:1	
Impedance	50 ohms	
Temperature range	-30°C to +70°C	
Number of cavities	2	4
MECHANICAL SPECIFICATIONS		
Cavity diameter in. (cm)	4 (10)	
Dimensions (HWD) in. (cm)	5.25 x 19 x 8.5 (13 x 48 x 22)	
Mounting	19" Panel	
Connectors	N Female	
Finish	Acrylic enamel	
Net weight lb. (kg)	4 (1.8)	8.25 (3.7)
Shipping weight lb. (kg)	7 (3.2)	13 (5.9)

All specifications subject to change without notice

TPRD-8644
PASS/REJECT DUPLEXER



The Telewave TPRD-8644 Base Station Duplexer provides high performance and high reliability for the 760 or 860 MHz Public Safety and trunking bands. This duplexer can be easily reconfigured for transition from one band to the other. With two Pass/Reject cavities in each transmitter and receiver path, these duplexers provide maximum TX to RX protection in dense RF environments.

Mil-Spec semi-rigid cable is used for all interconnections to ensure long life, and lowest insertion loss with maximum power handling capability

Heavy-duty materials are used in construction of this duplexer, including silver-plated tuners and beryllium copper fingerstock contactors, assuring high "Q" performance with no problems due to dissimilar metals. Heliarc welded top and bottom plates ensure reliable, noise-free operation. Tuning is simple and remains stable from -30° C to +70° C, thanks to the threaded Invar tuning rod.

Adjustable coupling optimizes the required attenuation for ideal RX performance. All cavity inputs are electrically shorted to ground for maximum static and noise protection.

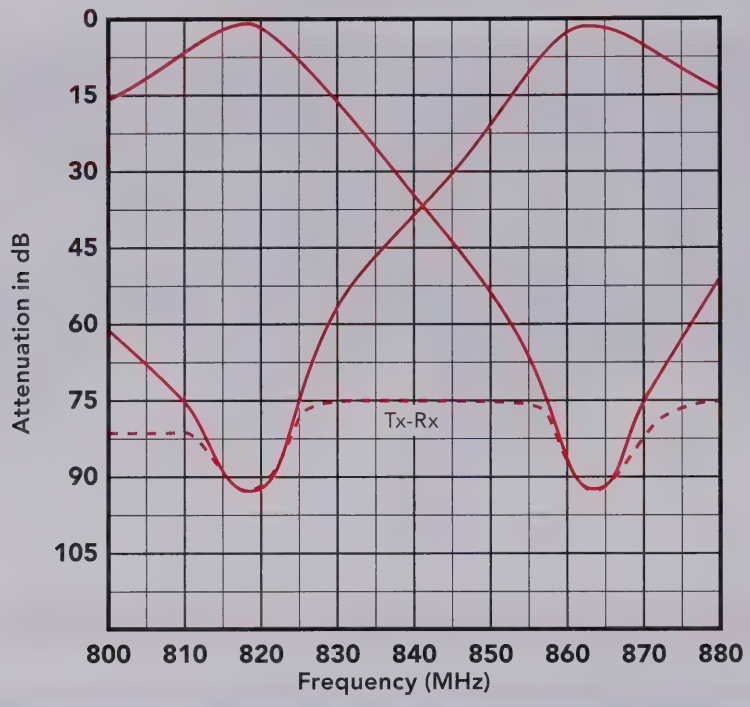
All duplexers are tuned and tested with customer-specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism allows for easy field tuning if frequency changes are implemented.

The TPRD-8644 mounts on a 19" standard rack, with panel height of 5.25". Power handling is 250 watts. Receiver desense protection is at least 80 dB, and TX sideband suppression is at least 80 dB.

With TX to RX spacing of 5 MHz or more, this duplexer can combine two transmitters into one antenna, or feed two receivers. For spacing less then 5 MHz, please contact Telewave for additional information.

TPRD-8644

TYPICAL RESPONSE

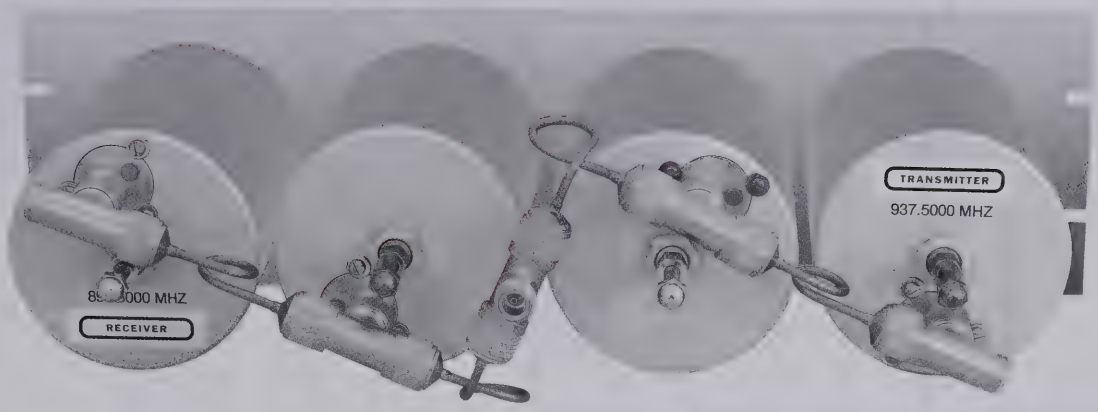


ELECTRICAL SPECIFICATIONS	
Frequency range	763-869 MHz
Frequency separation (min)	30 MHz (764-806 MHz) / 45 MHz (806-869 MHz)
Maximum input power	250 watts
Insertion loss (TX/RX to ant., typ)	1.0 dB
TX noise suppression at RX (min)	80 dB
RX attenuation at TX (min)	80 dB
TX-RX isolation for 5 MHz separation (min)	70 dB
VSWR (max)	1.5:1
Impedance	50 ohms
Temperature range	-30°C to +70°C
Number of cavities	4
MECHANICAL SPECIFICATIONS	
Cavity diameter in. (cm)	4 (10)
Dimensions (HWD) in. (cm)	5.25 x 19 x 10.5 (13 x 48 x 26.67)
Mounting	19" Panel
Connectors	N Female
Finish	Acrylic enamel
Net weight lb. (kg)	21 (9.6)
Shipping weight lb. (kg)	26 (11.8)

Specify exact transmitter and receiver frequencies when ordering.

All specifications subject to change without notice

TPRD-9044
PASS/REJECT DUPLEXER



The Telewave TPRD-9044 Base Station Duplexer provides high performance and high reliability for 900 MHz radio systems. With two Pass/Reject cavities in each transmitter and receiver path, these duplexers provide maximum TX to RX protection in dense RF environments.

Mil-Spec semi-rigid cable is used for all interconnections to ensure long life, and lowest insertion loss with maximum power handling capability.

Heavy-duty materials are used in construction of this duplexer, including silver-plated tuners and beryllium copper fingerstock contactors, assuring high "Q" performance with no problems due to dissimilar metals. Tuning is simple and remains stable from -30° C to +70° C, thanks to the threaded Invar tuning rod.

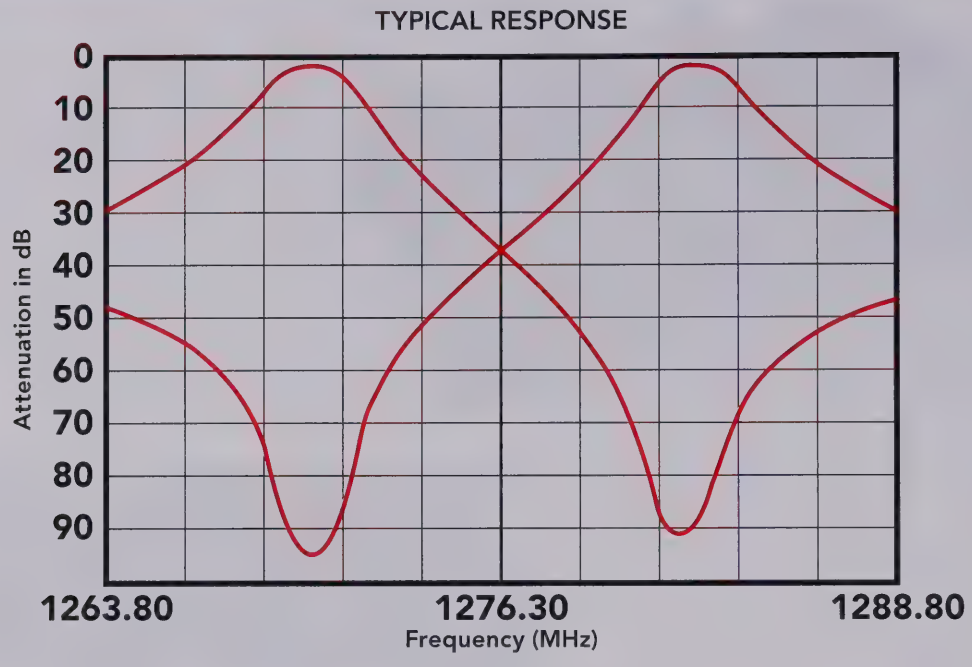
Adjustable coupling optimizes the required attenuation for ideal RX performance. All cavity inputs are electrically shorted to ground for maximum static and noise protection.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism allows for easy field tuning if frequency changes are implemented.

The TPRD-9044 mounts on a 19" standard rack, with panel height of 5.25". Power handling is 250 watts. Receiver desense protection is at least 80 dB, and TX sideband suppression is at least 80 dB.

With TX to RX spacing of 5 MHz or more, this duplexer can combine two transmitters into one antenna, or feed two receivers. Typical spacing is 39 MHz. Alternate spacing of 3.6 MHz, 9 MHz or other is also available. Frequencies and required spacing must be specified with all orders.

TPRD-12044



ELECTRICAL SPECIFICATIONS	
Frequency range	1240-1300 MHz
Frequency separation (typ. / min)	12 MHz / 6 MHz
Maximum input power	250 watts
Insertion loss (TX/RX to ant., typ)	1.0 dB
TX noise suppression at RX (min)	80 dB
RX attenuation at TX (min)	80 dB
TX-RX isolation for 6 MHz separation (min)	80 dB
VSWR (max)	1.5:1
Impedance	50 ohms
Temperature range	-30°C to +70°C
MECHANICAL SPECIFICATIONS	
Number of cavities	(4) - 4" Dia. x 8" L
Dimensions (HWD) in. (cm)	5.25 x 19 x 10.5 (13 x 48 x 26.67)
Mounting	19" Panel
Connectors	N Female
Finish	Acrylic enamel
Net weight lb. (kg)	21 (9.6)
Shipping weight lb. (kg)	26 (11.8)

NOTE: Exact transmitter and receiver frequencies must be specified.

All specifications subject to change without notice

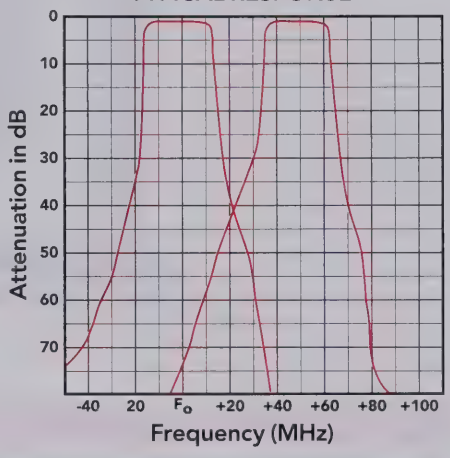
TPCD-8626
COMBLINE DUPLEXER

The Telewave TPCD-8626 Combline duplexer is specifically designed for use with 800 MHz master antenna systems, supporting trunking and conventional channels with excellent rejection of external noise sources. Maximum transmitter-to-receiver protection is achieved across the full 806-817 and 851-862 MHz bands.

The duplexer consists of two compact combline filters mounted on a single 5.25" panel, and provides steep-skirt selectivity with minimum insertion loss. All units are tuned and tested with customer specified frequencies for optimum performance. No further field adjustment should be required.

Telewave combline duplexers offer the ultimate performance for trunking and conventional systems, providing protection against receiver desensitization and interference at congested sites.

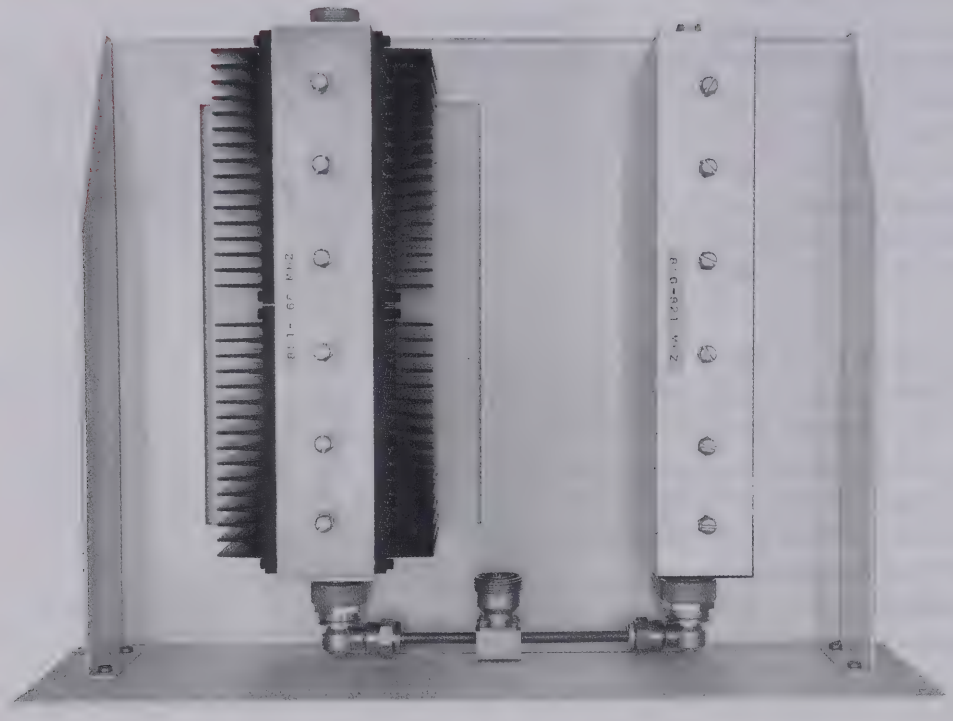
TYPICAL RESPONSE



ELECTRICAL SPECIFICATIONS	
Frequency range	806-960 MHz
Frequency separation (min)	45 MHz
Maximum input power	350 watts
TX or RX pass bandwidth	11 MHz
Insertion loss at pass bandwidth (TX / RX)	1 dB max / 0.5 dB (typ)
TX attenuation at RX band (min)	85 dB
RX attenuation at TX band (min)	85 dB
TX-to-RX attenuation (min)	75 dB
VSWR, ref. to 50 ohms (max)	1.5:1
Temperature range	-30°C to +70°C
MECHANICAL SPECIFICATIONS	
Mounting	19" Panel
Dimensions HWD in. (cm)	5.25 x 19 x 4.5 (13.3 x 48 x 11.4)
Connectors	N Female
Finish	Clear alodine
Net weight lb. (kg)	9.5 (4.3)
Shipping weight lb. (kg)	14 (6.4)

TPCD-8626HP

HIGH POWER COMBLINE DUPLEXER



The Telewave TPCD-8626HP High Power Combline Duplexer handles 500 watts, and is specially designed for 800 and 900 MHz master antenna systems which require high power handling, sharp selectivity, and very low insertion loss. This duplexer supports systems with large frequency spreads, and ensures suppression of out-of-band emissions (OOBE).

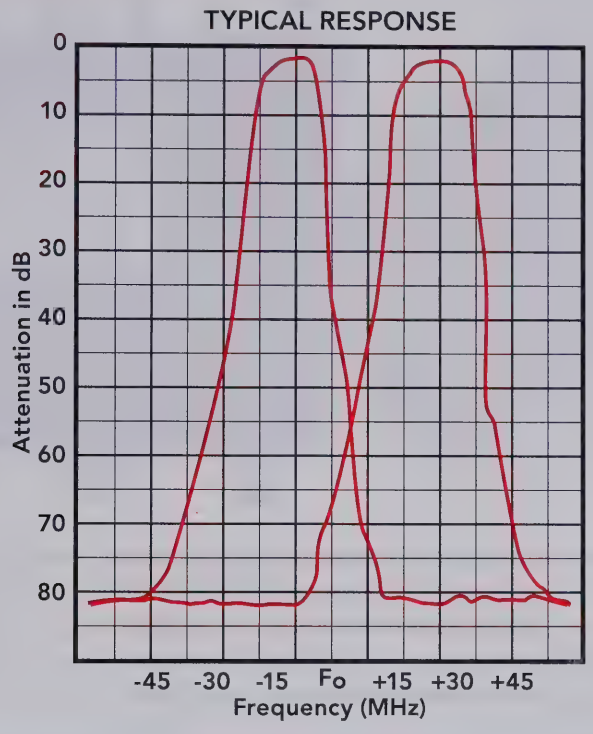
The TPCD-8626HP duplexer consists of two combline filters with 7-16 DIN connectors on both transmitter and antenna ports. The filters are mounted on a tray with a 19" x 5.25" front panel.

All units are tuned to user-specified frequency bands for optimum performance. No further adjustment is required.

Telewave High Power Combline Duplexers offer the ultimate performance in trunking and conventional systems, providing protection against receiver desensitization and interference at congested sites.

All specifications subject to change without notice

TPCD-8626HP



RF SPECIFICATIONS		
Frequency range		806-960 MHz
Frequency separation (min)		45 MHz
Maximum input power		500 watts
TX/RX pass bandwidth		15 MHz std. (10, 20,26 MHz opt.)
Insertion loss at pass bandwidth (TX and RX)		0.4 dB typ. / 0.75 dB max
TX attenuation at RX band (typ)		85 dB
RX attenuation at TX band (typ)		85 dB
TX to RX attenuation (min)		85 dB
VSWR, ref. to 50 ohms (max)		1.5:1
Temperature range		-30°C to +70°C
MECHANICAL SPECIFICATIONS		
Dimensions (HWD) in. (cm)		5.25 x 19 x 16 (13.3 x 48 x 40.6)
Mounting		19" Panel
Connectors	Antenna, TX input	7-16 DIN
	RX Output	N Female
Panel finish		Clear alodine
Cavity finish		Gray enamel
Net weight lb. (kg)		15 (6.8)
Shipping weight lb. (kg)		19.5 (8.9)

TELEWAVE, INC.

70 - 85 MHz

TMND-0716 | 70-78 MHz
TMND-0816 | 77-85 MHz

TMND-0716, 0816
MID-BAND COMPACT DUPLEXERS

Telewave TMND-0716/0816 Mobile Duplexers provide high performance in a compact design. These rugged duplexers are designed for use in base or mobile installations, with minimum space requirements.

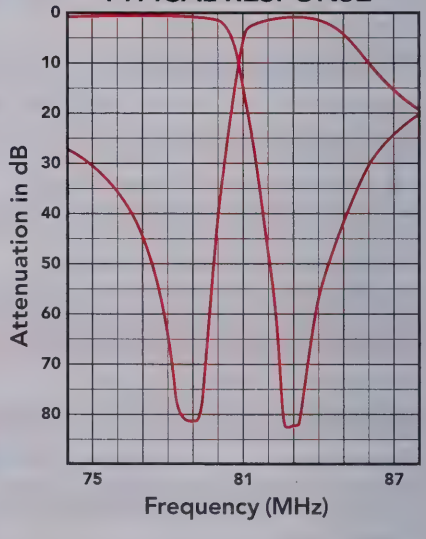
Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. This compact design has no exposed interconnect cables. Field tuning can be performed with easily accessible tuning elements on the rear of the unit.

The TMND-0716 and 0816 are designed to operate with at least 4 MHz TX to RX separation. This configuration provides 75 dB of isolation, and low insertion loss permits power handling up to 50 watts.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. When ordering, specify exact frequencies and connector type required (N or BNC).

ELECTRICAL SPECIFICATIONS	
Frequency range (MHz)	0716: 70-78 0816: 77-85
Frequency separation (min)	4 MHz
Maximum input power	50 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to-antenna)	1.2 dB
TX noise at RX (min)	75 dB
RX attenuation at TX (min)	75 dB
TX-RX Iso. at 4 MHz sep. (min)	75 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"
MECHANICAL SPECIFICATIONS	
Dimensions (HWL) in. (cm)	1.2 x 6.1 x 5.4 (3 x 15.5 x 13.7)
Connectors	N or BNC
Finish	Acrylic enamel
Net weight lb. (kg)	2.2 (1)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

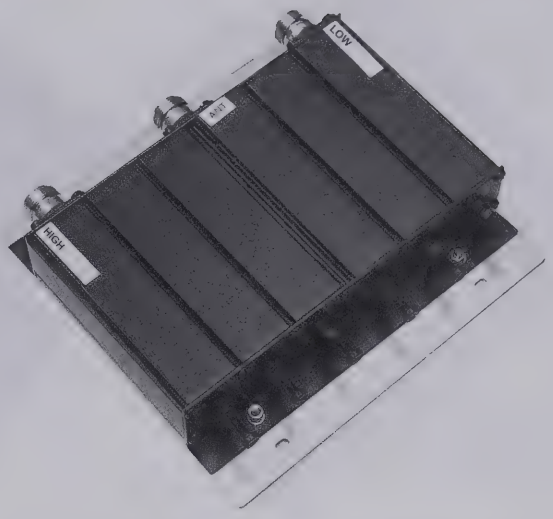
All specifications subject to change without notice

TWDS-6021 Rev. 11/06

TMND-1516, 1616, 1716
VHF COMPACT DUPLEXERS

Telewave TMND-15/16/1716 Mobile Duplexers provide high performance in a compact design. These rugged duplexers are designed for use in base or mobile installations, with minimum space requirements.

Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. This compact design has no exposed interconnect cables. Field tuning can be performed with easily accessible tuning elements on the rear of the unit.

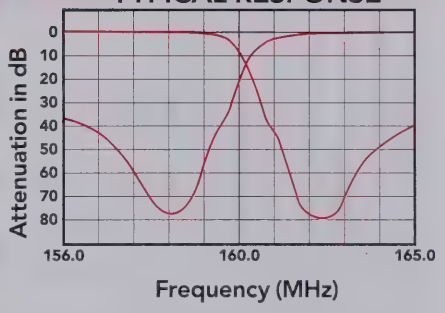


The TMND-15/16/1716 operate with at least 4 MHz TX to RX separation. This configuration provides 75 dB of isolation, and low insertion loss permits power handling up to 50 watts.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. When ordering, specify exact frequencies and connector type required (N or BNC).

ELECTRICAL SPECIFICATIONS	
Frequency range (MHz)	1516: 148-157 1716: 164-174 1616: 156-165
Frequency separation (min)	4 MHz
Maximum input power	50 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to-antenna)	1.4 dB
TX noise at RX (min)	75 dB
RX attenuation at TX (min)	75 dB
TX-RX Iso. at 4 MHz sep. (min)	75 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"
MECHANICAL SPECIFICATIONS	
Dimensions (HWL) in. (cm)	1.4 x 4.5 x 6.9 (3.5 x 11.4 x 17.5)
Footprint (mounting plate) in. (cm)	6.1 x 8.5 (16 x 22)
Connectors	BNC Female or N Female
Finish	Black acrylic enamel
Net weight lb. (kg)	2.2 (1)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

TELEWAVE, INC.

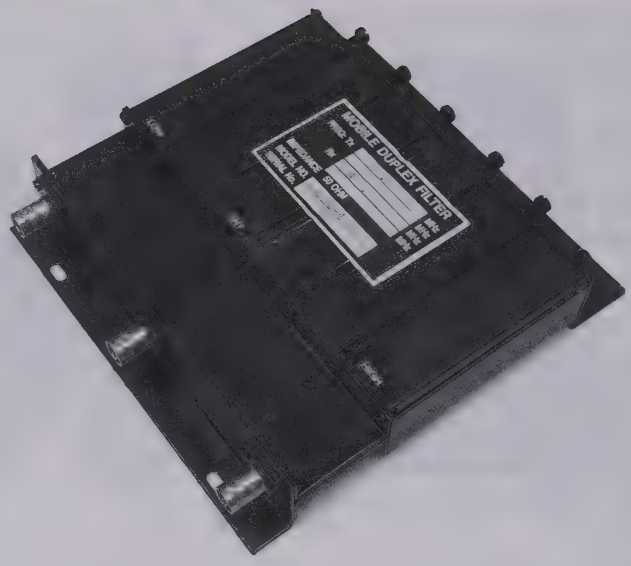
440 - 470 MHz

TMND-4416 | 440-450 MHz
TMND-4516 | 450-460 MHz
TMND-4616 | 460-470 MHz

TMND-4416, 4516, 4616
UHF COMPACT DUPLEXERS

Telewave TMND-44/45/4616 Mobile Duplexers provide high performance in a compact design. These rugged duplexers are designed for use in base or mobile installations, with minimum space requirements.

Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. This compact design has no exposed interconnect cables. Field tuning can be performed with easily accessible tuning elements on the rear of the unit.

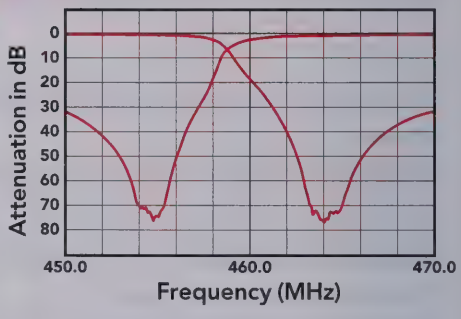


The TMND-44/45/4616 operate with at least 5 MHz TX to RX separation. This configuration provides 75 dB of isolation, and low insertion loss permits power handling up to 50 watts.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. When ordering, specify exact frequencies and connector type required (N or BNC).

ELECTRICAL SPECIFICATIONS	
Frequency range (MHz)	4416: 440-450 4616: 460-470 4516: 450-460
Frequency separation (min)	5 MHz
Maximum input power	50 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to antenna)	1.2 dB
TX noise at RX (min)	75 dB
RX attenuation at TX (min)	75 dB
TX-RX Iso. at 5 MHz sep. (min)	75 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"
MECHANICAL SPECIFICATIONS	
Dimensions (HWD) in. (cm)	1.3 x 6.1 x 6.9 (3.3 x 15.5 x 17.5)
Footprint (mounting plate) in. (cm)	6.1 x 8.5 (16 x 22)
Connectors	BNC Female or N Female
Finish	Black acrylic enamel
Net weight lb. (kg)	2.2 (1)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

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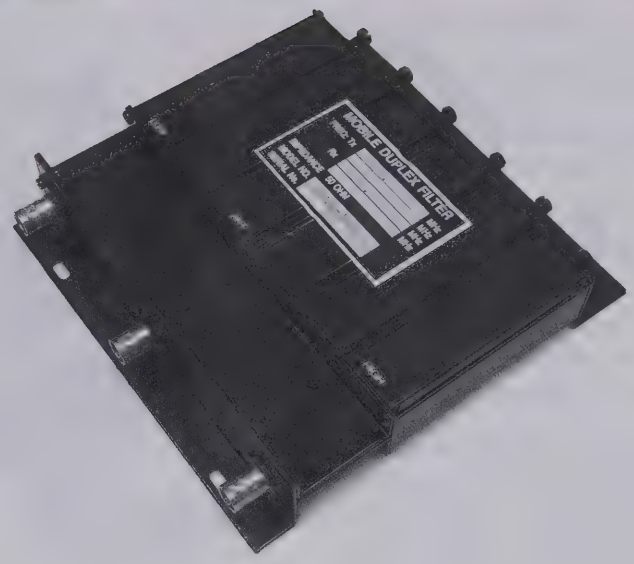
TWDS-6023 Rev. 11/06

TMND-4716, 4816, 4916, 5016
UHF COMPACT DUPLEXERS

Telewave Mobile Duplexers provide high performance in a compact design. These rugged duplexers are designed for use in base or mobile installations, with minimum space requirements.

Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. This compact design has no exposed interconnect cables. Field tuning can be performed if needed with easily accessible tuning elements on the rear of the unit.

Each duplexer covers a 10 MHz segment between 470-512 MHz, with typical 5 MHz TX to RX separation. This configuration provides 70 dB of isolation, and low insertion loss permits power handling up to 50 watts.

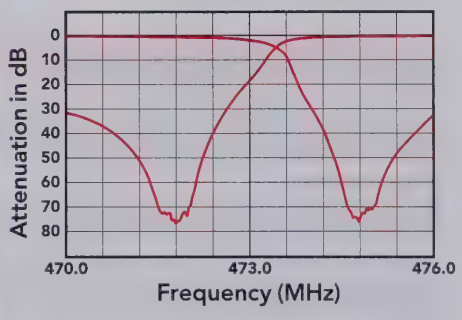


All duplexers are tuned and tested with customer-specified frequencies prior to shipping. When ordering, specify exact frequencies and connector type required (N or BNC).

ELECTRICAL SPECIFICATIONS	
Frequency range (MHz)	470-512 MHz (10 MHz segment)
Frequency separation (typ)	5 MHz (3 MHz - Contact Telewave)
Maximum input power	50 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to antenna)	1.25 dB
TX noise at RX (min)	70 dB
RX attenuation at TX (min)	70 dB
TX-RX Iso. at 5 MHz sep. (min)	70 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"

MECHANICAL SPECIFICATIONS	
Dimensions (HWD) in. (cm)	1.3 x 6.1 x 6.9 (3.3 x 15.5 x 17.5)
Footprint (mounting plate) in. (cm)	6.1 x 8.5 (16 x 22)
Connectors	BNC Female or N Female
Finish	Black acrylic enamel
Net weight lb. (kg)	2.2 (1)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

TELEWAVE, INC.

769 - 805 MHz

TMND-7616

700 MHZ COMPACT DUPLEXER

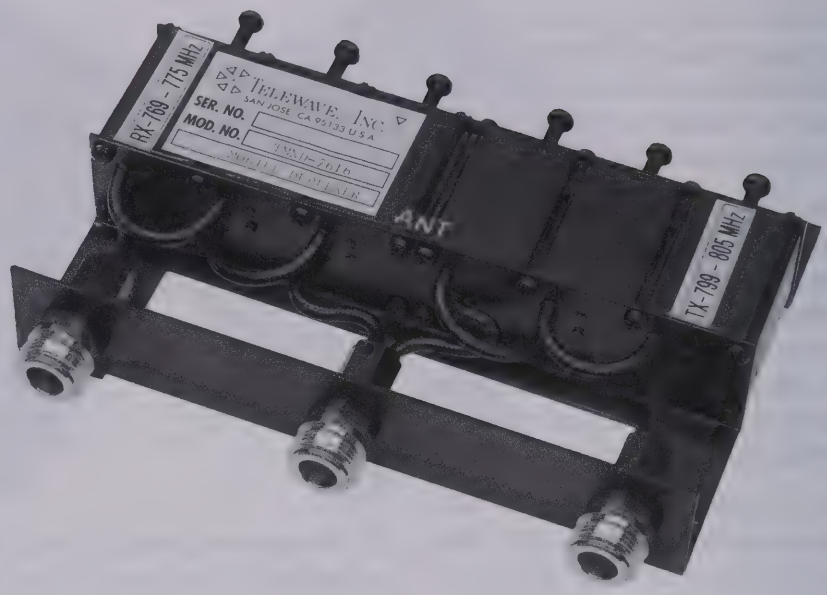
The Telewave TMND-7616 Compact Mobile Duplexer is a perfect complement to high performance mobile data systems running on 12.5 and 25 KHz channels.

The TMND-7616 covers 769-775 and 799-805 MHz with full 6 MHz band rejection. The compact size and form factor allow easy integration with any radio layout in all types of vehicles.

Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. Field tuning can be performed if needed with easily accessible tuning elements on the rear of the unit.

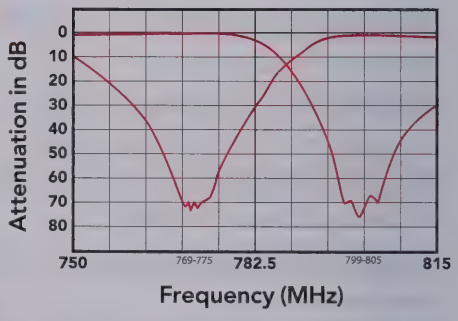
The TMND-7616 operates with at least 30 MHz TX to RX separation. This configuration provides 67 dB of isolation, with low insertion loss.

All duplexers are tuned and tested prior to shipping. N female connectors are standard.



ELECTRICAL SPECIFICATIONS	
Frequency range (MHz)	769-775 / 799-805
Frequency separation (min)	30 MHz
Input power	25 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to antenna)	1.2 dB
TX noise at RX (min)	67 dB
RX attenuation at TX (min)	67 dB
TX-RX Iso. at 30 MHz sep. (min)	67 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"
MECHANICAL SPECIFICATIONS	
Dimensions (HWL) in. (cm)	1.25 x 6.0 x 6.5 (3.2 x 15.2 x 16.5)
Connectors	BNC Female or N Female
Finish	Black acrylic enamel
Net weight lb. (kg)	2.0 (0.9)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

All specifications subject to change without notice

TWDS-6013 Rev. 5/13

TMND-8616

800 MHZ COMPACT DUPLEXER

The Telewave TMND-8616 Compact Mobile Duplexer provides high performance in a compact design. This rugged duplexer is designed for use in base or mobile installations, with minimum space requirements.

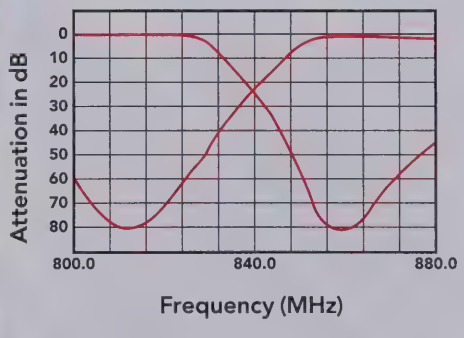
Each duplexer consists of six High "Q" helical resonators in a band-reject configuration. Field tuning can be performed if needed with easily accessible tuning elements on the rear of the unit.

The TMND-8616 operates with typical 45 MHz TX to RX separation. This configuration provides 70 dB of isolation, and power handling up to 50 watts with low insertion loss.

All duplexers are tuned and tested with customer-specified frequencies prior to shipping. When ordering, specify exact frequencies and connector type required (N or BNC).

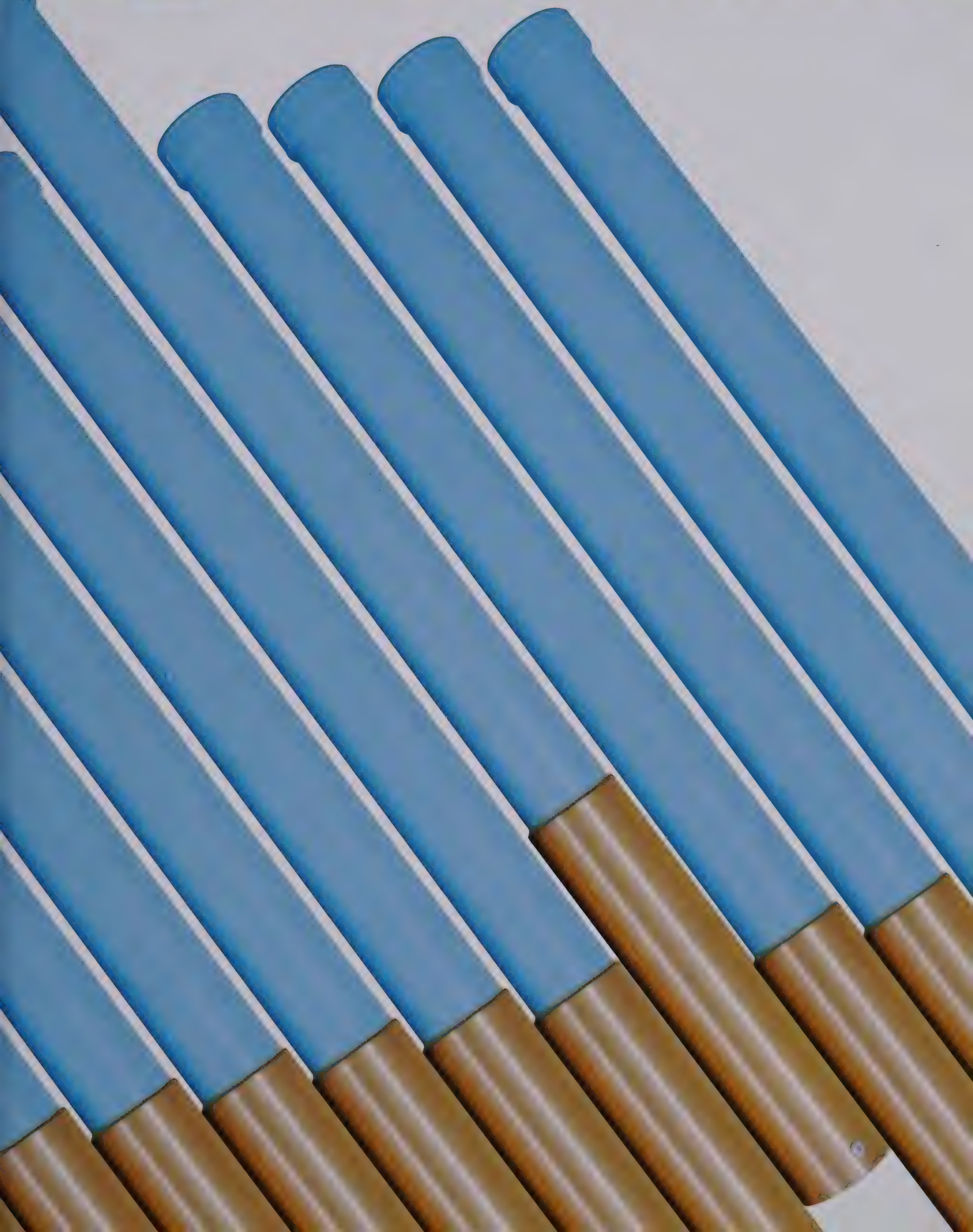
ELECTRICAL SPECIFICATIONS	
Frequency range	806-869 MHz
Frequency separation (min / typ)	5 / 45 MHz
Maximum input power	50 watts
Impedance / VSWR (max)	50 ohms / 1.5:1
Insertion loss (TX/RX to-antenna)	1.0 dB
TX noise at RX (min)	70 dB
RX attenuation at TX (min)	70 dB
TX-RX Iso. at 5 MHz sep. (min)	70 dB
Temperature range	-20°C to +60°C
Resonators	(6) - 1"
MECHANICAL SPECIFICATIONS	
Dimensions (HWL) in. (cm)	1.25 x 6.0 x 6.5 (3.2 x 15.2 x 16.5)
Connectors	BNC Female or N Female
Finish	Black acrylic enamel
Net weight lb. (kg)	2.0 (0.9)
Shipping weight lb. (kg)	3.0 (1.4)

TYPICAL RESPONSE



Appearance of current production models may vary from picture.

7 BASE STATION ANTENNAS



Fiberglass Collinear

Collinear antennas provide a consistent omnidirectional pattern with no external ground plane components. Advanced engineering produces significant gain and frequency range options. Fiberglass composite radomes offer complete protection from severe environments.

Folded Dipole

Telewave Broadband Folded Dipole antennas can be configured for several different horizontal patterns, depending on coverage requirements. Cardiod, offset, and bi-directional patterns are easily produced by adjusting element spacing during or after installation.

Dipole Arrays

Dipole arrays use multiple elements to compress the vertical pattern, providing more gain in a particular direction or protection to or from a nearby system. Electrical and mechanical tilt from 1-15 degrees is possible with two to eight elements.

Yagi

Yagi antennas are rugged, compact devices which produce a very directional horizontal pattern. These antennas are fully sealed and are ideal for control and linking applications.

Power Dividers

RF Power Dividers split a single input into 2, 3, or 4 outputs with impedance matching to ensure 50 ohms at all ports. These dividers handle up to 500 watts of power with no port isolation.

Crossband Couplers

Crossband couplers allow radios in multiple frequency bands to connect to appropriate antennas with a single cable run and very low insertion loss. A pair of devices is typically used for this application, or a single device can couple multiple radios to a single broadband antenna.

COLLINEAR ANTENNAS

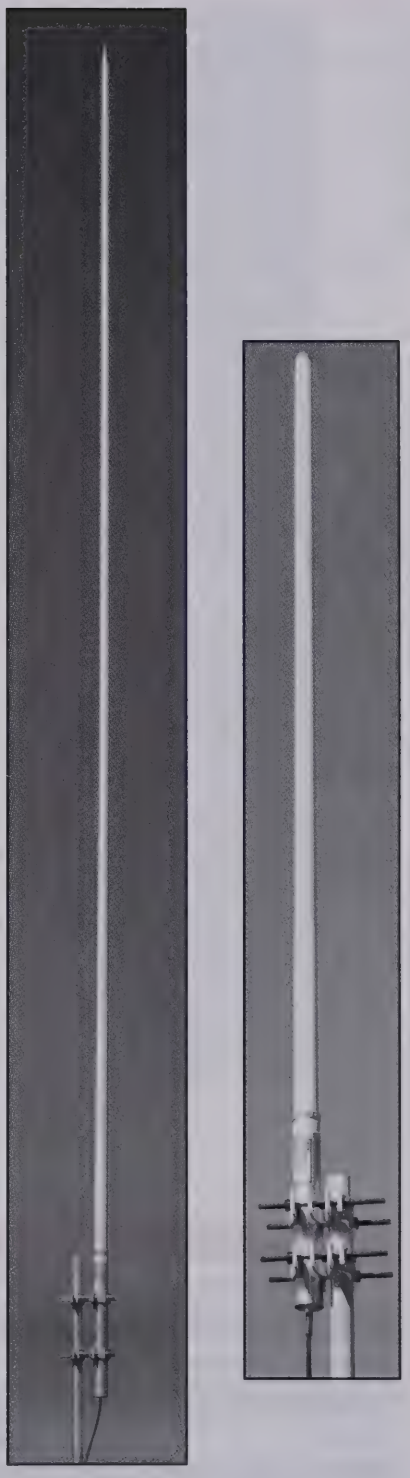
Telewave ***COOL BLUE™*** fiberglass collinear antennas are an industry standard. These antennas are specified by system designers who require their unique combination of wide bandwidth, high performance, gain flexibility, and rugged durability in all environmental conditions.

All Telewave collinear antennas handle 500 watts minimum input power, and are available in eight major frequency bands between 118-965 MHz, with gain from 0 to 10 dBd. Horizontal patterns are omnidirectional, and vertical beamwidth ranges from 7 to 42 degrees depending on gain and frequency.

The Telewave collinear design does not require external ground plane radials, eliminating a major source of failure and RF intermodulation. These antennas are constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection, including a solid copper or brass top cap. All junctions are fully soldered to prevent intermodulation. A heavy-duty 2.75" support pipe made of 6061-T6 aluminum is permanently bonded to an exceptionally strong radome, ensuring years of trouble-free performance.

The ***COOL BLUE™*** interwoven fiberglass radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives. Wind-load ratings are up to 200 MPH with no ice, and the flexibility of the radome (F6/8/10 models) allows enough antenna motion to resist normal icing, without affecting the pattern. The special radome color helps the antenna blend into the skyline, and absorbs solar radiation to accelerate de-icing.

The standard connector type is a recessed N-female, attached inside the base of the support pipe. A 24" coax jumper is included to simplify installations using hard-line cable. For higher power applications, a 7-16 DIN-F connector can be installed as an option. One set of heavy-duty mounting clamps is included with each antenna.



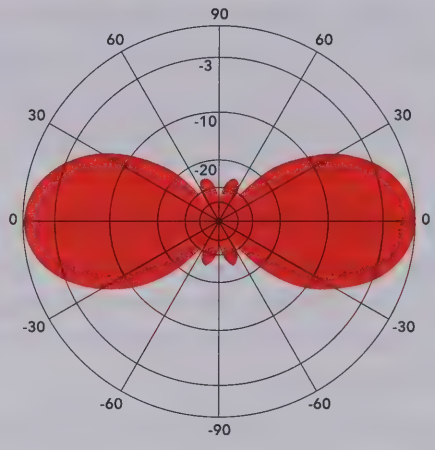
ANT125F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

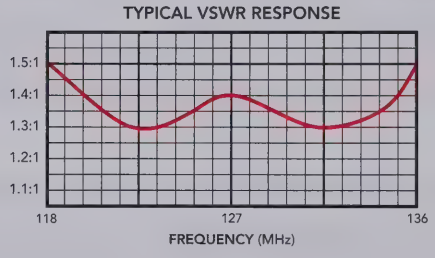
The Telewave ANT125F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT125F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT125F2 - 127 MHz
Vertical Plane
Gain = 2.56 dBd



SPECIFICATIONS			
Frequency (continuous)	118-136 MHz	**Dimensions (L x base diam.) in.**	77 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	16 lb.
Power rating (typ.)	500 watts	**Shipping weight**	20 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.6 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	62 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	117 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

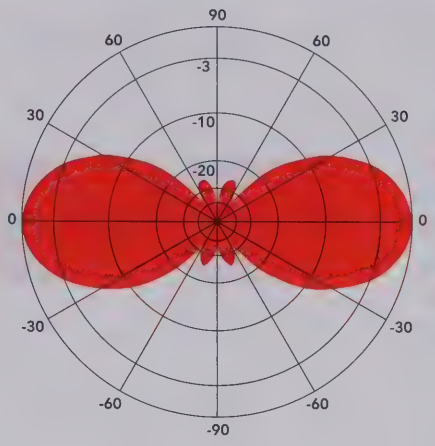
ANT135F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

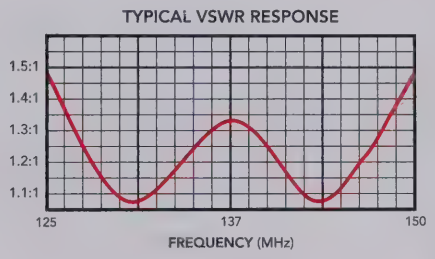
The Telewave ANT135F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground for lightning impulse protection.

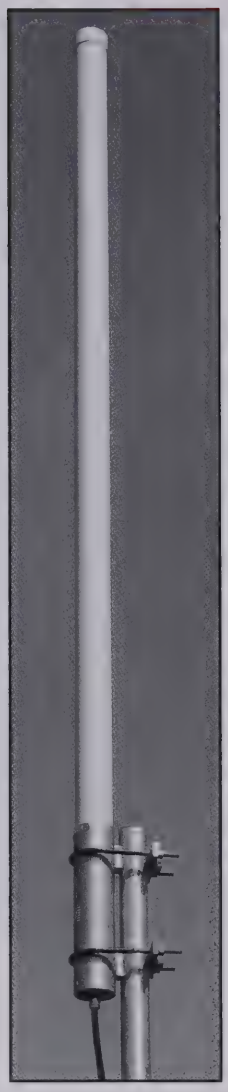
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT135F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT135F2 - 137 MHz
Vertical Plane
Gain = 2.53 dBd





SPECIFICATIONS			
Frequency (continuous)	125-150 MHz	**Dimensions (L x base diam.) in.**	72 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	15 lb.
Power rating (typ.)	500 watts	**Shipping weight**	19 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.5 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	59 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	101 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

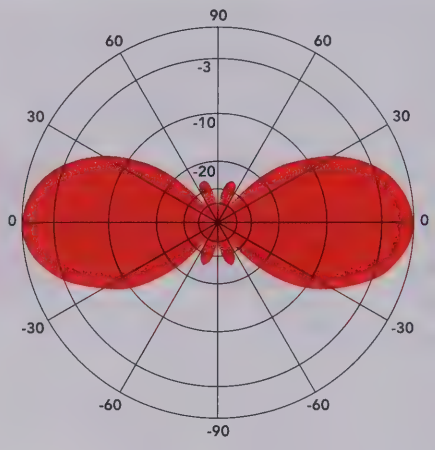
ANT140F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

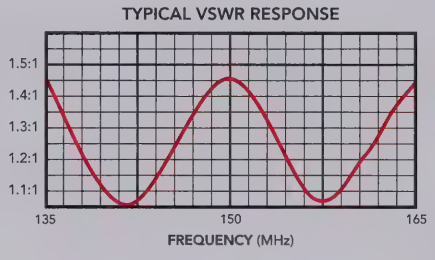
The Telewave ANT140F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT140F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT140F2 - 150 MHz
Vertical Plane
Gain = 2.51 dBd



SPECIFICATIONS			
Frequency (continuous)	135-165 MHz	**Dimensions (L x base diam.) in.**	66 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	13 lb.
Power rating (typ.)	500 watts	**Shipping weight**	17 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.4 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	55 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	83 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

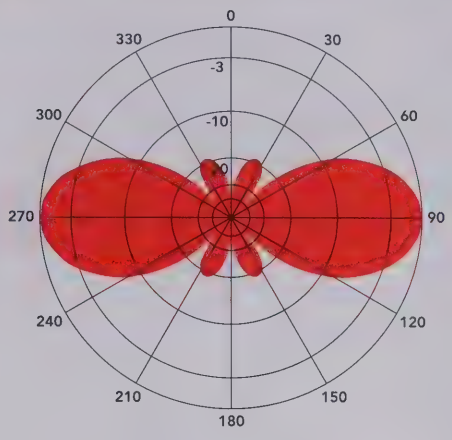
ANT150F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

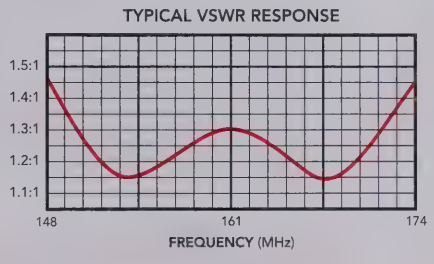
The Telewave ANT150F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground for lightning impulse protection.

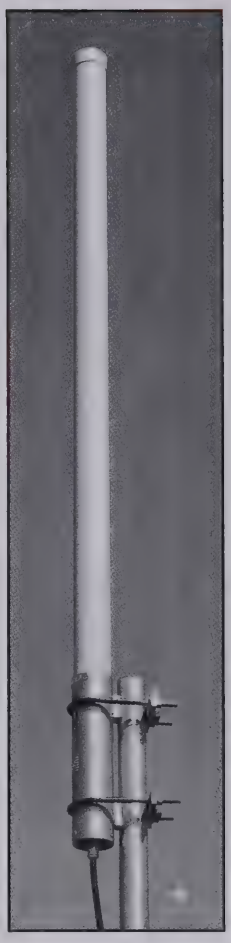
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT150F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT150F2 156 MHz
Vertical Plane
Gain = 2.55 dBd





SPECIFICATIONS			
Frequency (continuous)	148-174 MHz	**Dimensions (L x base diam.) in.**	60 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	12 lb.
Power rating (typ.)	500 watts	**Shipping weight**	16 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.3 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	50 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	67 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

ANT150F6

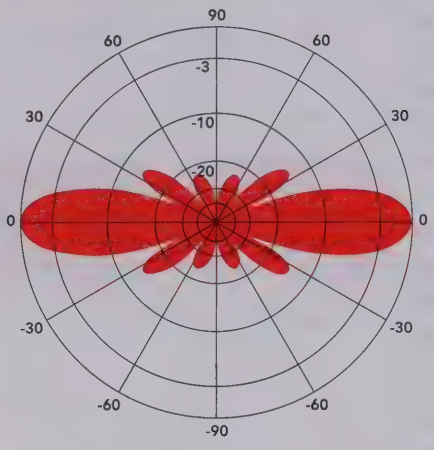
FIBERGLASS COLLINEAR ANTENNA 6 dBd

The Telewave ANT150F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection. All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a high-tech, flexible radome to ensure survivability in the worst environments.

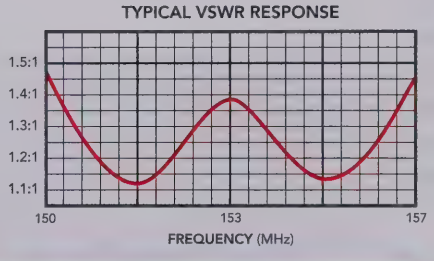
The "Cool Blue" radome provides maximum protection from corrosive gases, UV radiation, icing, salt spray, acid rain, and wind blown abrasives. Eight models cover the entire VHF band. Please specify exact frequency and band code (-1, -2, etc.) when ordering.

The ANT150F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THESE ANTENNAS ARE SHIPPED VIA TRUCK FREIGHT ONLY



ANT150F6 - 156 MHz
Vertical Plane
Gain = 6.41 dBd



FREQUENCY RANGES	
ANT150F6-1	138 - 144 MHz
ANT150F6-2	144 - 151 MHz
ANT150F6-3	150 - 157 MHz
ANT150F6-4	156 - 164 MHz
ANT150F6-5	158 - 166 MHz
ANT150F6-6	161 - 168 MHz
ANT150F6-7	167 - 172.5 MHz
ANT150F6-8	171 - 175 MHz

SPECIFICATIONS			138-151 MHz	150-175 MHz
Frequency range	138-175 MHz (8 bands)	**Dimensions (L x base diam.)**	256" x 2.75"	244" x 2.75"
Gain	6 dBd	**Tower weight** (Antenna + clamps)	43 lb.	41 lb.
Power rating (typ.)	500 watts	**Shipping weight**	65 lb.	62 lb.
Impedance	50 ohms	**Wind rating / 0.5" ice**	150 / 125 MPH	
VSWR	1.5:1 or less	**Maximum exposed area**	4.05 ft.²	3.97 ft.²
Pattern	Omnidirectional	**Lateral Thrust at 100 MPH**	162 lb.	159 lb.
Vertical beamwidth	20°	**Bending Moment - top clamp**	1090 ft. lb.	1010 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**		

All specifications subject to change without notice

ANT195F2

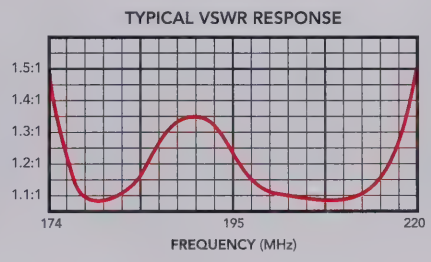
FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

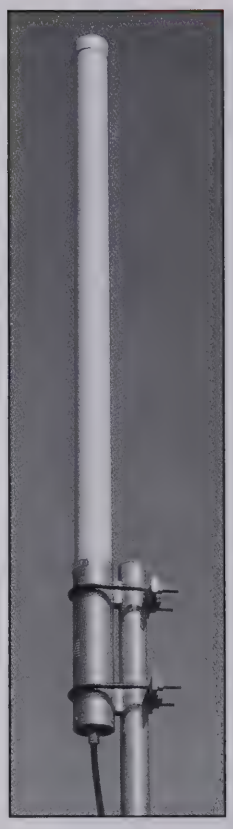
The Telewave ANT195F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection. The ANT195F2 is an excellent choice for SCADA or other whitespace applications, and DTV translators.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT195F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.

ANT195F2 - 195 MHz
Vertical Plane
Gain = 2.52 dBd





SPECIFICATIONS			
Frequency (continuous)	174-216 MHz	**Dimensions (L x base diam.) in.**	53 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	11 lb.
Power rating (typ.)	500 watts	**Shipping weight**	15 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.2 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	46 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	54 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

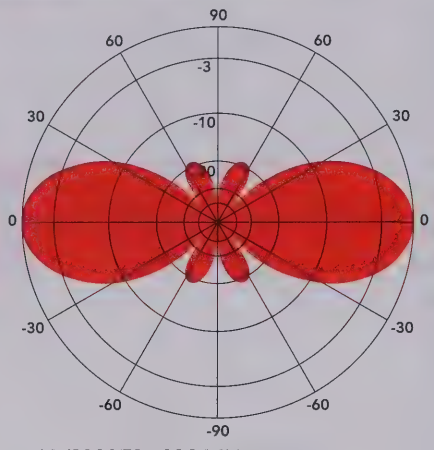
ANT220F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

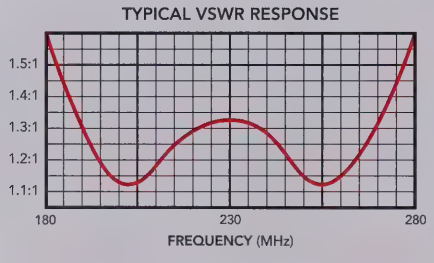
The Telewave ANT220F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection. The ANT220F2 is an excellent choice for wireless PTC systems in urban or rural areas.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT220F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT220F2 - 230 MHz
Vertical Plane
Gain = 2.58 dBd



SPECIFICATIONS			
Frequency (continuous)	195-260 MHz	**Dimensions (L x base diam.) in.**	51 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	11 lb.
Power rating (typ.)	500 watts	**Shipping weight**	14 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.1 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	44 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	47 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

ANT220F6

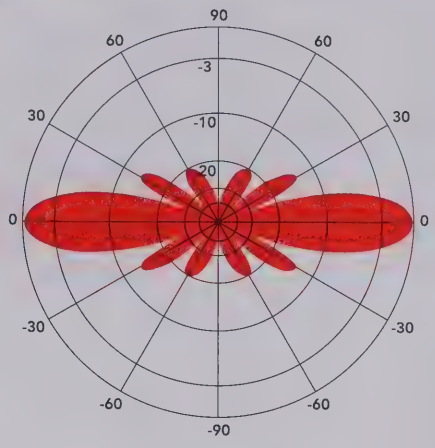
FIBERGLASS COLLINEAR ANTENNA 6 dBd

The Telewave ANT220F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection. The ANT220F6 is an excellent choice for wireless PTC systems in urban or rural areas.

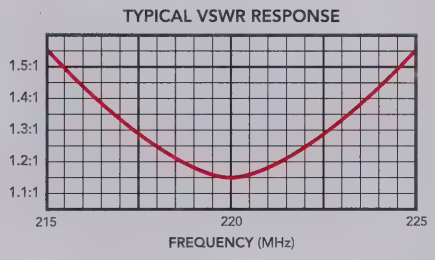
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT220F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT220F6 - 221 MHz
Vertical Plane
Gain = 6.11 dBd



SPECIFICATIONS			
Frequency (continuous)	216-225 MHz	**Dimensions (L x base diam.) in.**	171 x 2.75
Gain	6 dBd	**Tower weight (antenna + clamps)**	35 lb.
Power rating (typ.)	500 watts	**Shipping weight**	50 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	3.1 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	122 lb.
Vertical beamwidth	20°	**Bending moment at top clamp**	494 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

TELEWAVE, INC.

340 - 370 MHz

ANT355F6

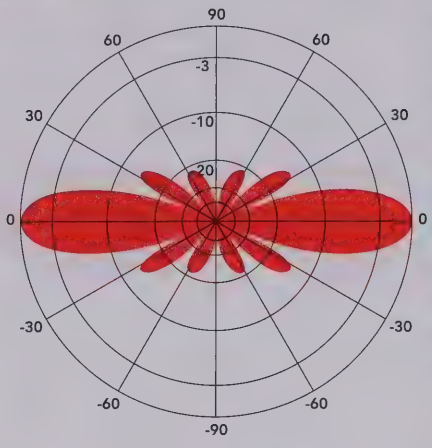
FIBERGLASS COLLINEAR ANTENNA 6 dBd

The Telewave ANT355F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

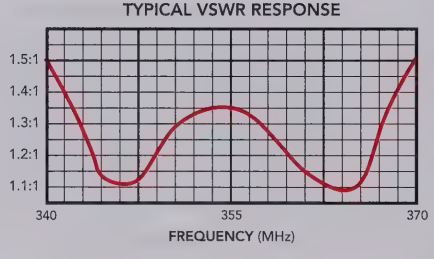
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT355F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT355F6 - 355 MHz
Vertical Plane
Gain = 6.27 dBd



SPECIFICATIONS			
Frequency (continuous)	340-370 MHz	**Dimensions (L x base diam.) in.**	126 x 2.75
Gain	6 dBd	**Tower weight (antenna + clamps)**	26 lb.
Power rating (typ.)	500 watts	**Shipping weight**	37 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	2.5 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	99 lb.
Vertical beamwidth	18°	**Bending moment at top clamp**	263 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

TWDS-7094 Rev. 1/11

ANT385F6

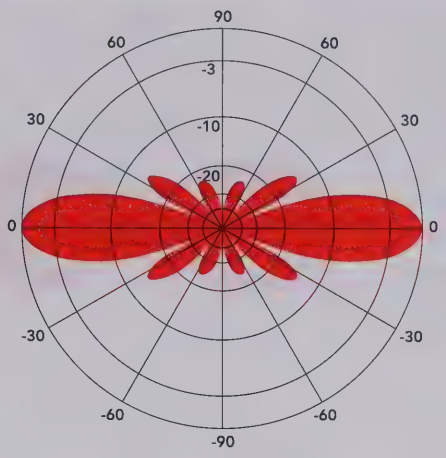
FIBERGLASS COLLINEAR ANTENNA 6 dBd

The Telewave ANT385F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

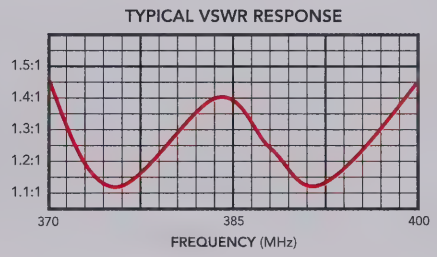
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

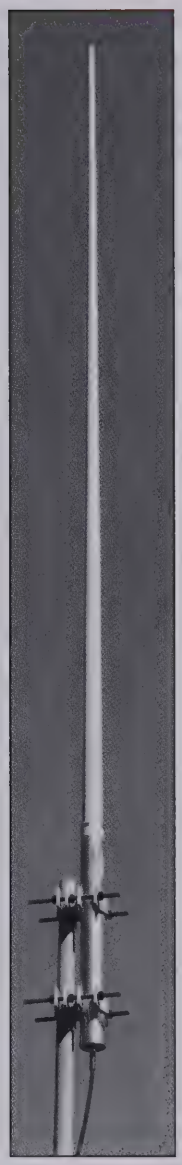
The ANT385F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT385F6 - 385 MHz
Vertical Plane
Gain = 6.12 dBd





SPECIFICATIONS			
Frequency (continuous)	370-400 MHz	**Dimensions (L x base diam.) in.**	112 x 2.75
Gain	6 dBd	**Tower weight (antenna + clamps)**	24 lb.
Power rating (typ.)	500 watts	**Shipping weight**	35 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	2.3 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	91 lb.
Vertical beamwidth	18°	**Bending moment at top clamp**	205 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

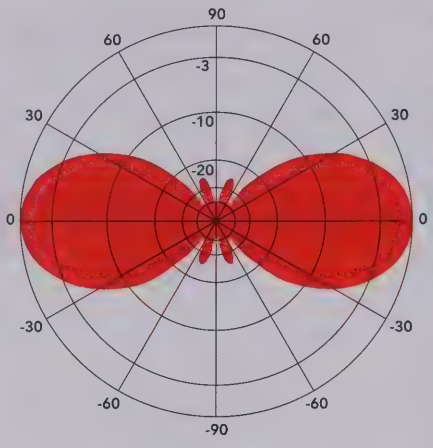
ANT400F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

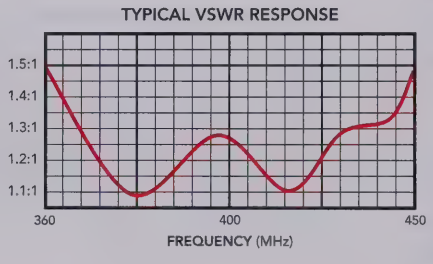
The Telewave ANT400F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

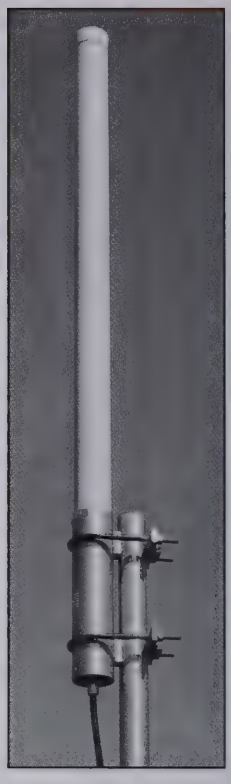
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT400F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT400F2 - 410 MHz
Vertical Plane
Gain = 2.51 dBd





SPECIFICATIONS			
Frequency (continuous)	360-455 MHz	**Dimensions (L x base diam.) in.**	44 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	9 lb.
Power rating (typ.)	500 watts	**Shipping weight**	11 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	39 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	33 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

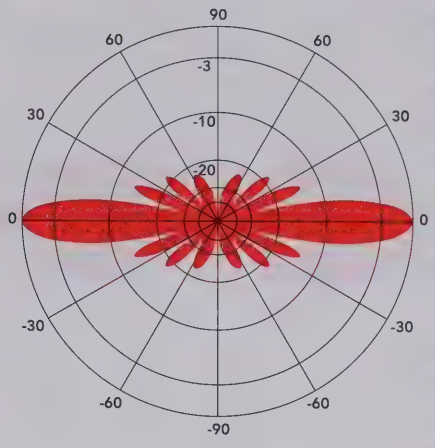
ANT415F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

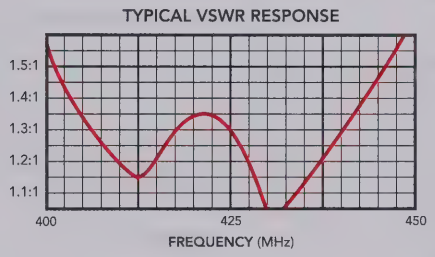
The Telewave ANT415F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT415F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT415F6 - 421 MHz
Vertical Plane
Gain = 6.7 dBd



SPECIFICATIONS			
Frequency (continuous)	405-440 MHz	**Dimensions (L x base diam.) in.**	101 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	22 lb.
Power rating (typ.)	500 watts	**Shipping weight**	28 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	185 / 155 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.7 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	68 lb.
Vertical beamwidth	18°	**Bending moment at top clamp**	149 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

ANT415F8

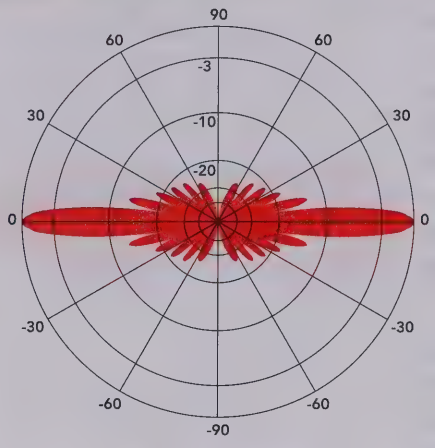
FIBERGLASS COLLINEAR ANTENNA 8 dBd

The Telewave ANT415F8 is an extremely rugged, high-gain fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

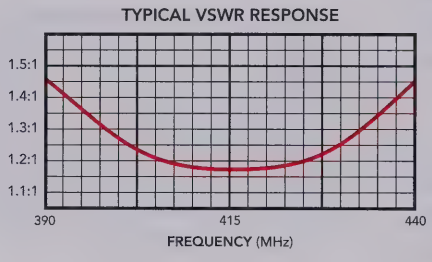
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT415F8 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT415F8 - 420 MHz
Vertical Plane
Gain = 8.68 dBd



SPECIFICATIONS			
Frequency (continuous)	395-436 MHz	**Dimensions (L x base diam.) in.**	240 x 2.75
Gain	8 dBd	**Tower weight (antenna + clamps)**	40 lb.
Power rating (typ.)	500 watts	**Shipping weight**	60 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	3.9 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	157 lb.
Vertical beamwidth	11°	**Bending moment at top clamp**	975 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

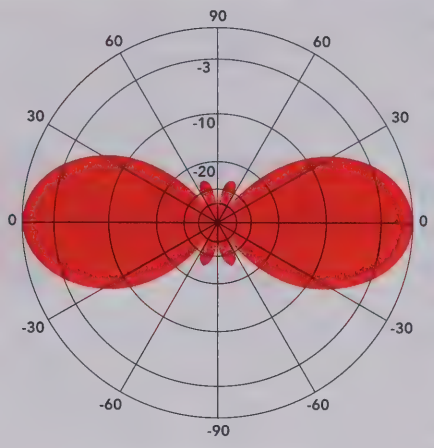
ANT425F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

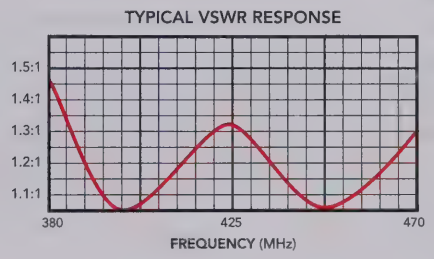
The Telewave ANT425F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT425F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT425F2 - 425 MHz
Vertical Plane
Gain = 2.56 dBd



SPECIFICATIONS			
Frequency (continuous)	380-470 MHz	**Dimensions (L x base diam.) in.**	42 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	9 lb.
Power rating (typ.)	500 watts	**Shipping weight**	11 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	38 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	30 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

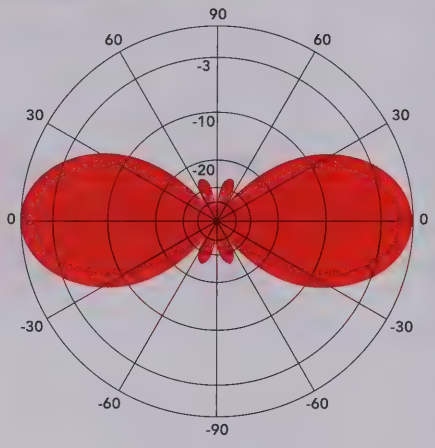
ANT450F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

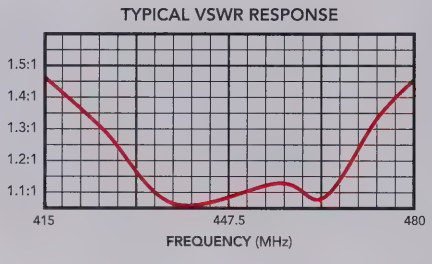
The Telewave ANT450F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

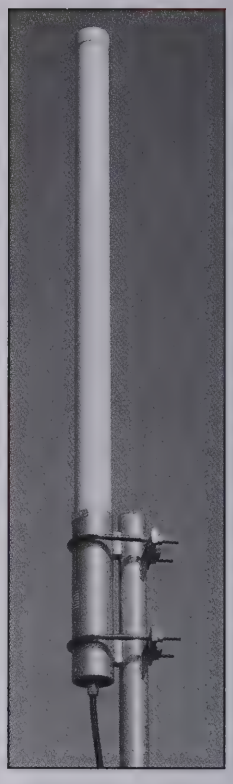
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT450F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT450F2 - 447 MHz
Vertical Plane
Gain = 2.54 dBd





SPECIFICATIONS			
Frequency (continuous)	420-480 MHz	**Dimensions (L x base diam.) in.**	42 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	9 lb.
Power rating (typ.)	500 watts	**Shipping weight**	11 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	38 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	30 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

TWDS-7018 Rev. 1/11

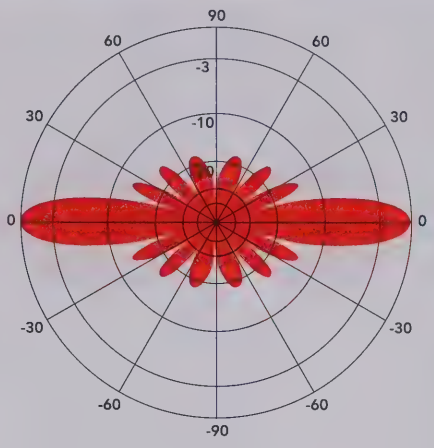
ANT450F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

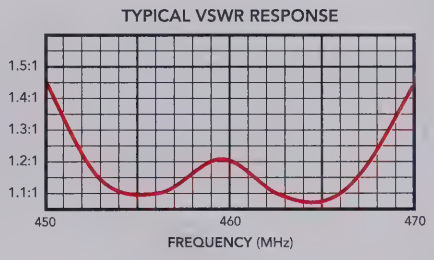
The Telewave ANT450F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT450F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT450F6 - 460 MHz
Vertical Plane
Gain = 6.32 dBd



SPECIFICATIONS			
Frequency (continuous)	445-480 MHz	**Dimensions (L x base diam.) in.**	94 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	21 lb.
Power rating (typ.)	500 watts	**Shipping weight**	26 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.5 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	60 lb.
Vertical beamwidth	18°	**Bending moment at top clamp**	143 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

ANT450F10

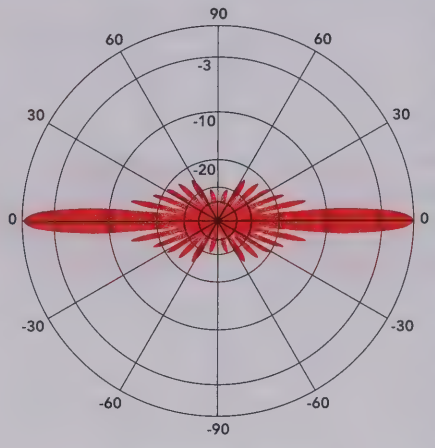
FIBERGLASS COLLINEAR ANTENNA 10 dBd

The Telewave ANT450F10 is an extremely rugged, high-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

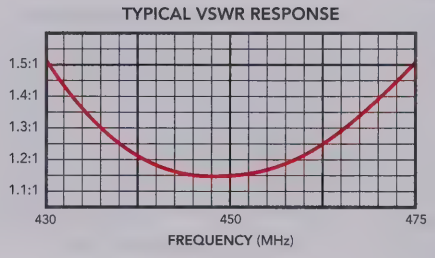
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT450F10 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT450F10 - 450 MHz
Vertical Plane
Gain = 10.06 dBd



SPECIFICATIONS			
Frequency (continuous)	430-475 MHz	**Dimensions (L x base diam.) in.**	244 x 2.75
Gain	10 dBd	**Tower weight (antenna + clamps)**	41 lb.
Power rating (typ.)	500 watts	**Shipping weight**	62 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	4.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	159 lb.
Vertical beamwidth	7°	**Bending moment at top clamp**	1010 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

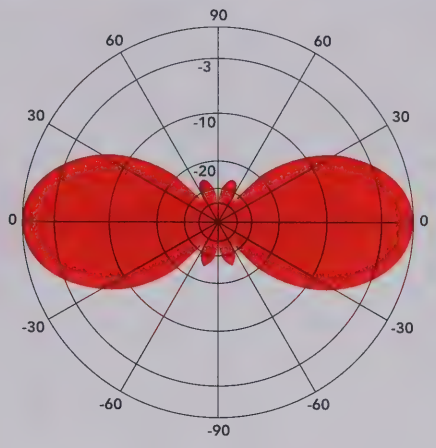
ANT480F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

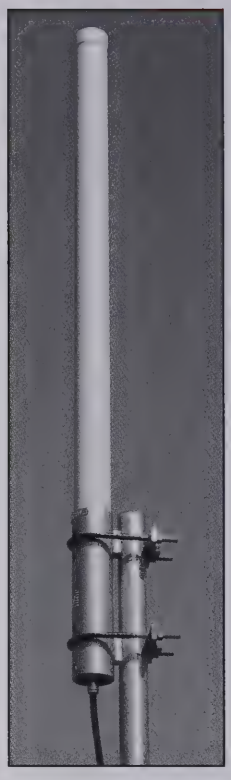
The Telewave ANT480F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

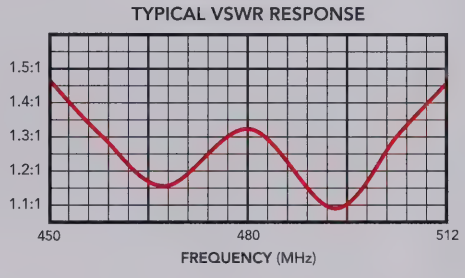
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT480F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT480F2 - 487 MHz
Vertical Plane
Gain = 2.51 dBd





SPECIFICATIONS			
Frequency (continuous)	450-512 MHz	**Dimensions (L x base diam.) in.**	42 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	9 lb.
Power rating (typ.)	500 watts	**Shipping weight**	11 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	38 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	30 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

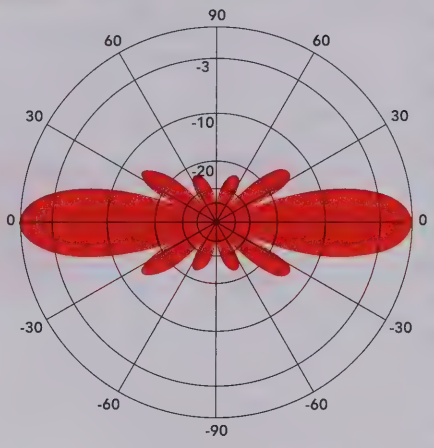
ANT500F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

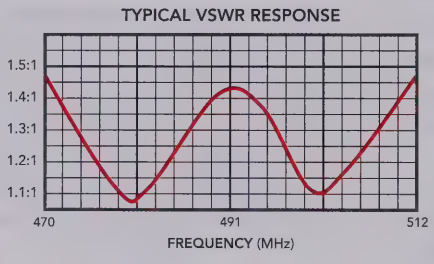
The Telewave ANT500F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT500F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT500F6 - 490 MHz
Vertical Plane
Gain = 6.28 dBd



SPECIFICATIONS			
Frequency (continuous)	470-512 MHz	**Dimensions (L x base diam.) in.**	89 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	20 lb.
Power rating (typ.)	500 watts	**Shipping weight**	25 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.4 ft.^{2}
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	57 lb.
Vertical beamwidth	19°	**Bending moment at top clamp**	127 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

TWDS-7049 Rev. 1/11

ANT500F10

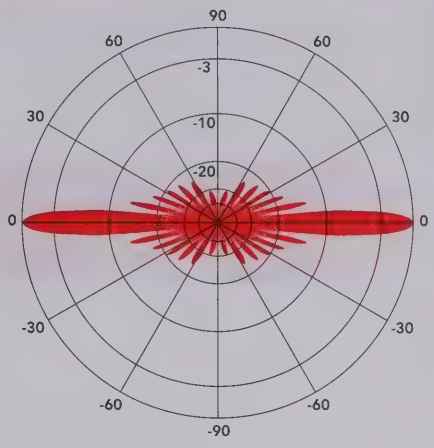
FIBERGLASS COLLINEAR ANTENNA 10 dBd

The Telewave ANT500F10 is an extremely rugged, high-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

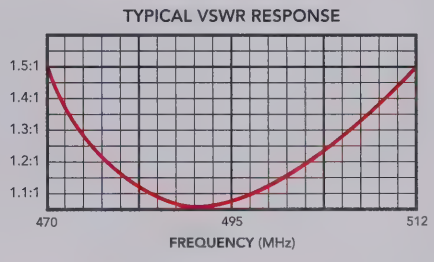
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT500F10 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY



ANT500F10 - 495 MHz
Vertical Plane
Gain = 10.06 dBd



SPECIFICATIONS			
Frequency (continuous)	470-512 MHz	**Dimensions (L x base diam.) in.**	244 x 2.75
Gain	10 dBd	**Tower weight (antenna + clamps)**	41 lb.
Power rating (typ.)	500 watts	**Shipping weight**	62 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	150 / 125 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	4.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	159 lb.
Vertical beamwidth	7°	**Bending moment at top clamp**	1010 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

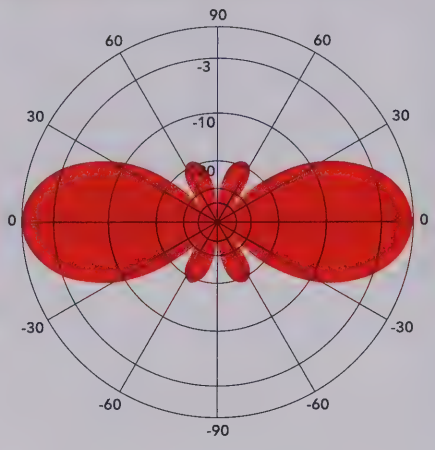
ANT734-960F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

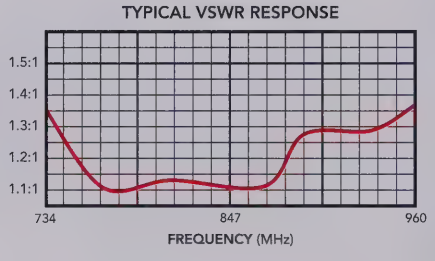
The Telewave ANT734-960F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact, wideband antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

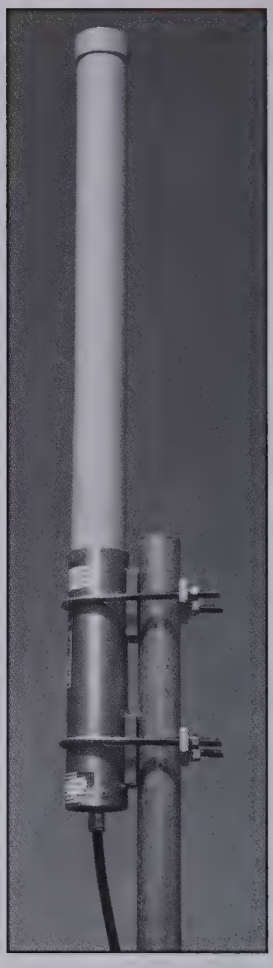
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT734-960F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT734-960F2 - 838 MHz
Vertical Plane
Gain = 2.5 dBd





SPECIFICATIONS			
Frequency (continuous)	734-960 MHz	**Dimensions (L x base diam.) in.**	38 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	8 lb.
Power rating (typ.)	500 watts	**Shipping weight**	10 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	0.9 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	35 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	23 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

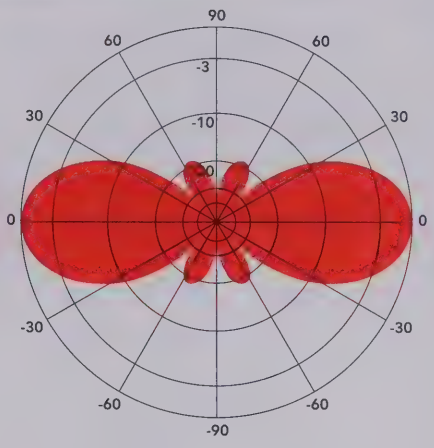
ANT770F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

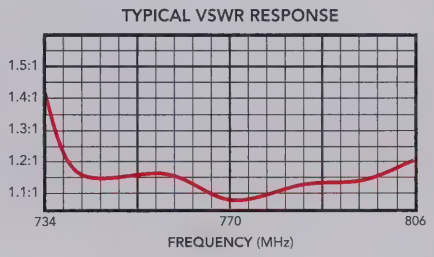
The Telewave ANT770F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

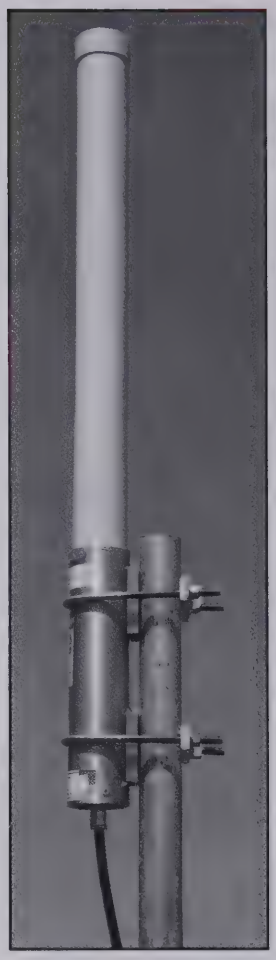
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT770F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT770F2 - 750 MHz
Vertical Plane
Gain = 2.5 dBd





SPECIFICATIONS			
Frequency (continuous)	734-806 MHz	**Dimensions (L x base diam.) in.**	38 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	8 lb.
Power rating (typ.)	500 watts	**Shipping weight**	10 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	0.9 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	35 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	23 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

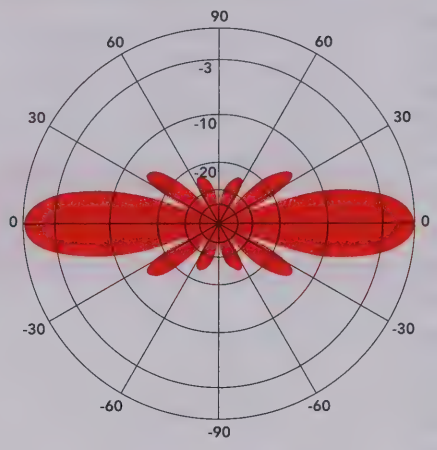
ANT770F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

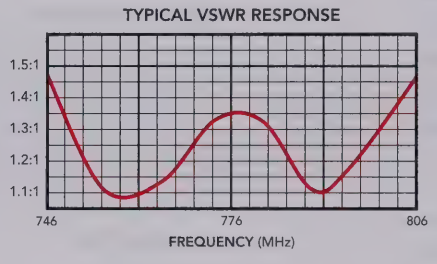
The Telewave ANT770F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT770F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT770F6 - 776 MHz
Vertical Plane
Gain = 6.15 dBd



SPECIFICATIONS			
Frequency (continuous)	746-806 MHz	**Dimensions (L x base diam.) in.**	61 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	19 lb.
Power rating (typ.)	500 watts	**Shipping weight**	23 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.1 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	42 lb.
Vertical beamwidth	19°	**Bending moment at top clamp**	55 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

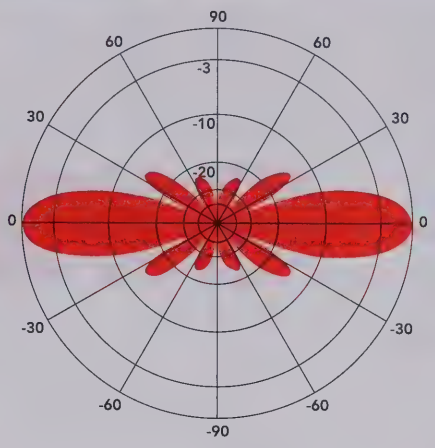
ANT825F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

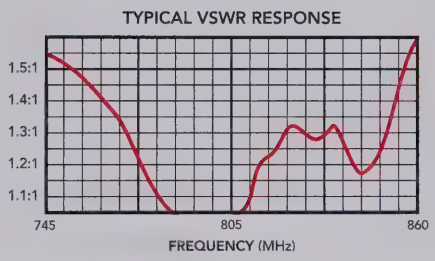
The Telewave ANT825F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT825F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT825F6 - 800 MHz
Vertical Plane
Gain = 6.09 dBd



SPECIFICATIONS			
Frequency (continuous)	745-860 MHz	**Dimensions (L x base diam.) in.**	59 x 2.75
Gain	6 dBd	**Tower weight (antenna + clamps)**	18 lb.
Power rating (typ.)	500 watts	**Shipping weight**	22 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.05 ft.^{2}
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	41 lb.
Vertical beamwidth	19°	**Bending moment at top clamp**	52 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

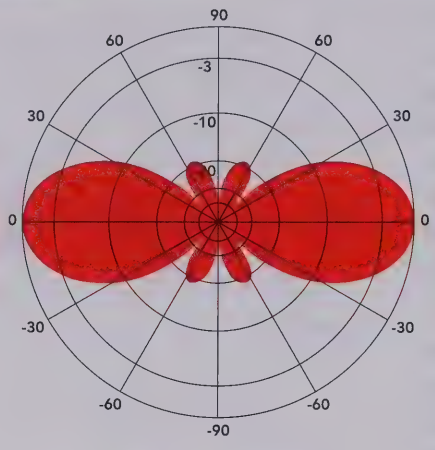
ANT850F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

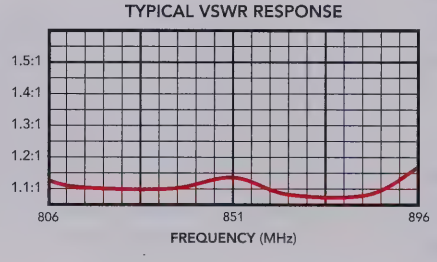
The Telewave ANT850F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

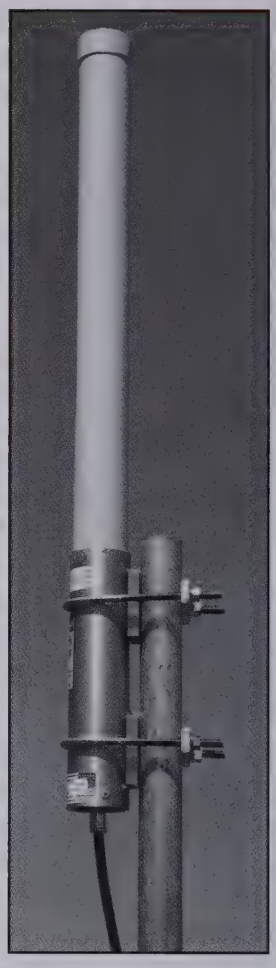
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT850F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT850F2 - 851 MHz
Vertical Plane
Gain = 2.58 dBd





SPECIFICATIONS			
Frequency (continuous)	806-896 MHz	**Dimensions (L x base diam.) in.**	38 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	8 lb.
Power rating (typ.)	500 watts	**Shipping weight**	10 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	0.9 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	35 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	23 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

TWDS-7054 Rev. 1/11

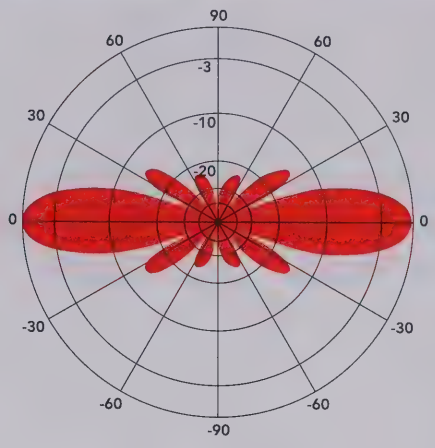
ANT850F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

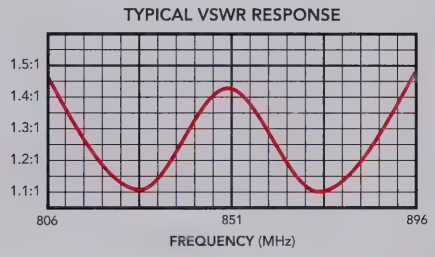
The Telewave ANT850F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

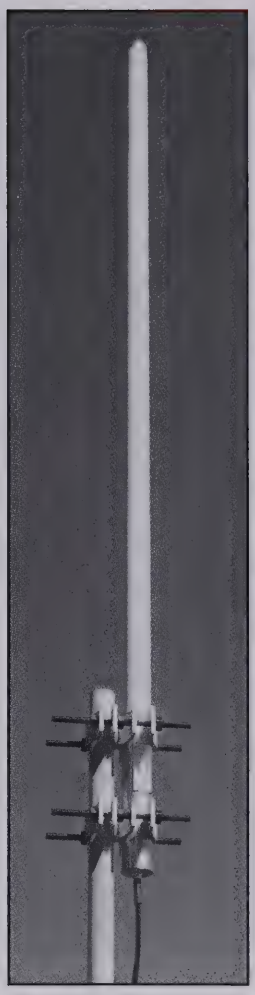
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT850F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT850F6 - 850 MHz
Vertical Plane
Gain = 6.16 dBd





SPECIFICATIONS			
Frequency (continuous)	806-896 MHz	**Dimensions (L x base diam.) in.**	56 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	18 lb.
Power rating (typ.)	500 watts	**Shipping weight**	22 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	39 lb.
Vertical beamwidth	19°	**Bending moment at top clamp**	46 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

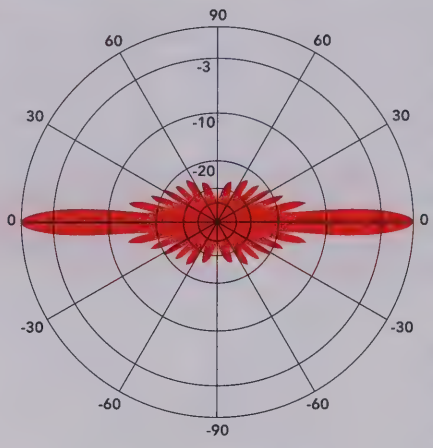
ANT850F10

FIBERGLASS COLLINEAR ANTENNA 10 dBd

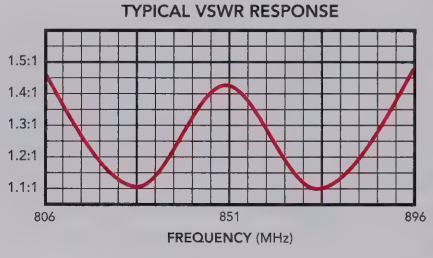
The Telewave ANT850F10 is an extremely rugged, high-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT850F10 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT850F10 - 850 MHz
Vertical Plane
Gain = 10.10 dBd



SPECIFICATIONS			
Frequency (continuous)	806-896 MHz	**Dimensions (L x base diam.) in.**	83 x 2.375
Gain	10 dBd	**Tower weight (antenna + clamps)**	19 lb.
Power rating (typ.)	500 watts	**Shipping weight**	23 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.3 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	53 lb.
Vertical beamwidth	6°	**Bending moment at top clamp**	106 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

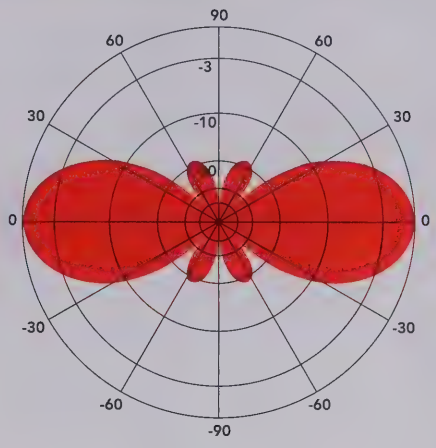
ANT900F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

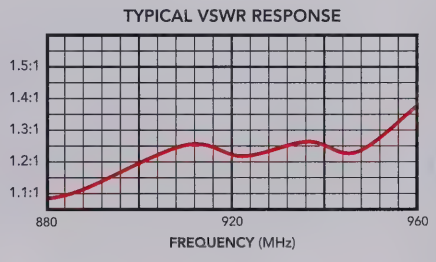
The Telewave ANT900F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to ground potential for lightning impulse protection.

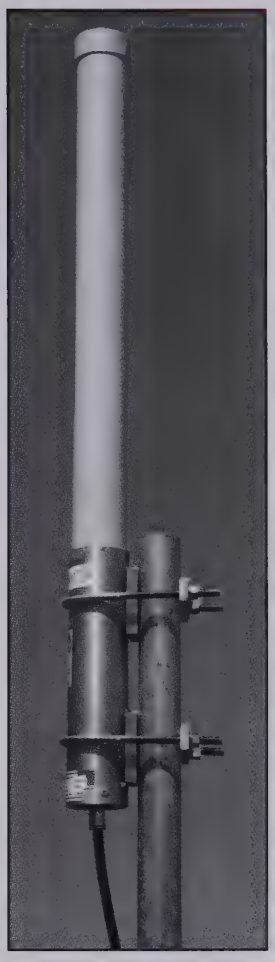
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT900F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT900F2 - 928 MHz
Vertical Plane
Gain = 2.5 dBd





SPECIFICATIONS			
Frequency (continuous)	880-960 MHz	**Dimensions (L x base diam.) in.**	38 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	8 lb.
Power rating (typ.)	500 watts	**Shipping weight**	10 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	0.9 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	35 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	23 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

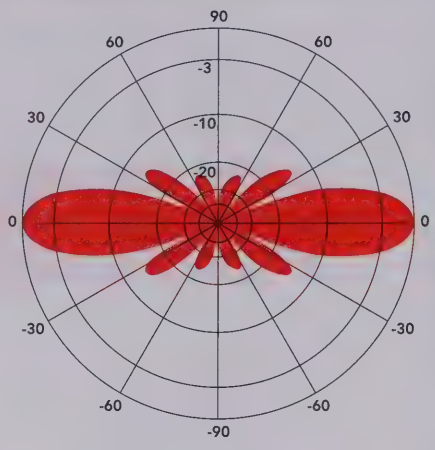
ANT940F6

FIBERGLASS COLLINEAR ANTENNA 6 dBd

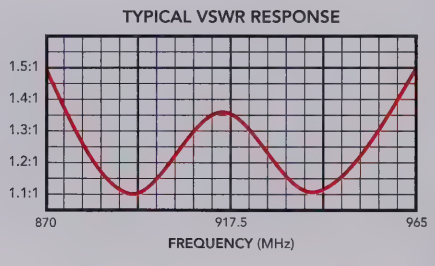
The Telewave ANT940F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

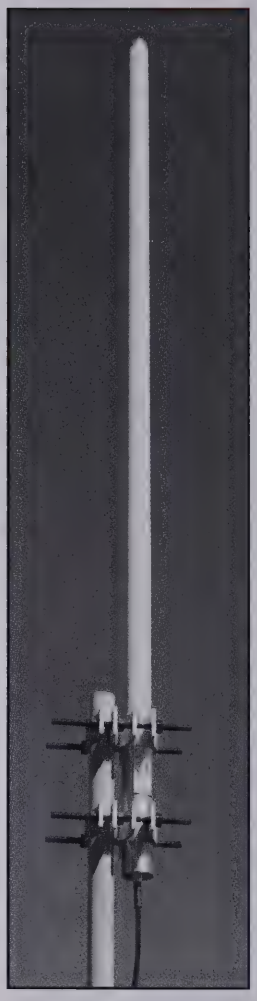
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT940F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT940F6 - 930 MHz
Vertical Plane
Gain = 6.1 dBd





SPECIFICATIONS			
Frequency (continuous)	870-965 MHz	**Dimensions (L x base diam.) in.**	56 x 2.375
Gain	6 dBd	**Tower weight (antenna + clamps)**	18 lb.
Power rating (typ.)	500 watts	**Shipping weight**	22 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.0 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	39 lb.
Vertical beamwidth	19°	**Bending moment at top clamp**	46 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

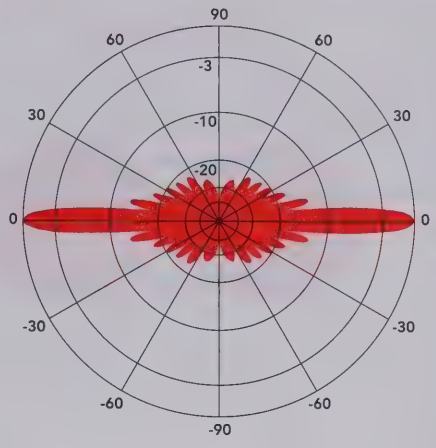
ANT940F10

FIBERGLASS COLLINEAR ANTENNA 10 dBd

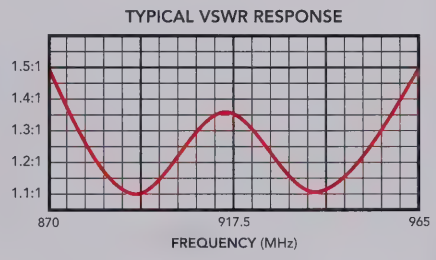
The Telewave ANT940F10 is an extremely rugged, high-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection.

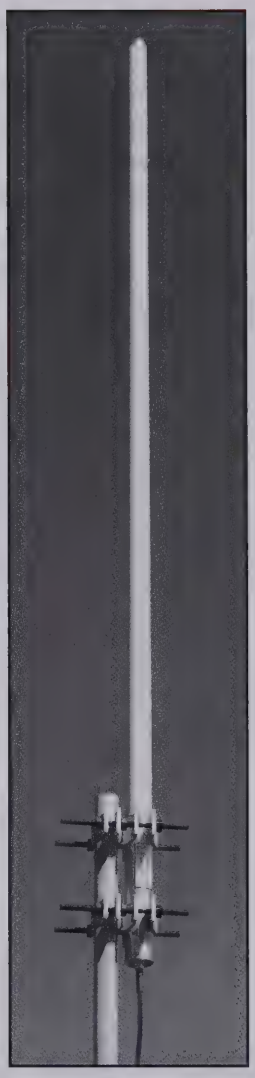
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT940F10 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.



ANT940F10 - 930 MHz
Vertical Plane
Gain = 10.12 dBd





SPECIFICATIONS			
Frequency (continuous)	870-965 MHz	**Dimensions (L x base diam.) in.**	83 x 2.375
Gain	10 dBd	**Tower weight (antenna + clamps)**	19 lb.
Power rating (typ.)	500 watts	**Shipping weight**	23 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.4 ft.^{2}
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	55 lb.
Vertical beamwidth	6°	**Bending moment at top clamp**	112 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

TELEWAVE, INC.

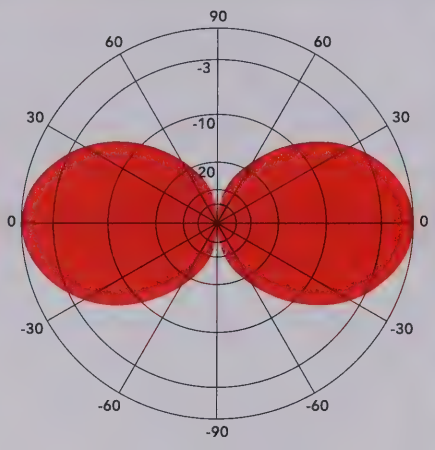
900 - 960 MHz

ANT960F0-1 | 900-930 MHz
ANT960F0-2 | 920-960 MHz

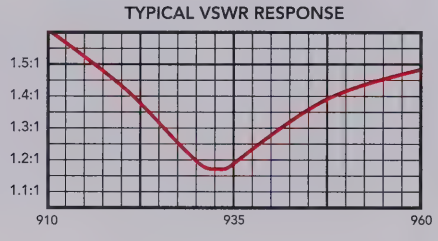
ANT960F0

WIRELESS DATA ANTENNA 2 dBd

The Telewave ANT960F0 "Data Stick" is a rugged, economical omni antenna for wireless data applications in the 900 MHz band. The antenna is constructed entirely from brass internal components, and the durable radome is designed to withstand severe weather and environmental conditions. The radome will not corrode or degrade as a result of exposure to UV, salt water, oil, or most common chemical fumes. Optional mounting hardware is available for various applications.



ANT960F0 - 915 MHz
Vertical Plane
Gain = 2.0 dBd



Shown with optional clamp

SPECIFICATIONS			
Frequency range	900-930 / 920-960 MHz	**Dimensions (L x base diam.) in.**	14.5 x 1
Gain	2 dBd	**Antenna weight**	1 lb.
Power rating (typ.)	50 watts	**Shipping weight**	3 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	90 / 90 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	0.1 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	4 lb.
Vertical beamwidth	42°	**Bending moment at top clamp**	2 ft. lb.
Termination	Recessed N-Male	**(100 MPH, 40 PSF flat plate equiv.)**	

All specifications subject to change without notice

TWDS-7039 Rev. 1/11

INSTALLATION GUIDE FOR COLLINEAR ANTENNAS *F2 MODELS*

WARNING:

For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

IMPORTANT - BEFORE ASSEMBLING AND MOUNTING:

Carefully read these instructions and study the diagrams. Check to make sure you have all parts. Both clamps must be installed and properly spaced to prevent antenna rotation from wind load.

PARTS LIST

(1) Antenna assembly
(1) Jumper RG-213 N-male to N-male 24"
(provided only with N-terminated antennas)
(1) ANTC485 clamp kit

Clamp Kit Contents (Figure 1):

(2) Clamp plates
(2) 3/8"-16 stainless U bolts
(4) Hex nuts
(4) Lock washers
(1) Anti-seize compound

Figure 1: ANTC485 Clamp Kit

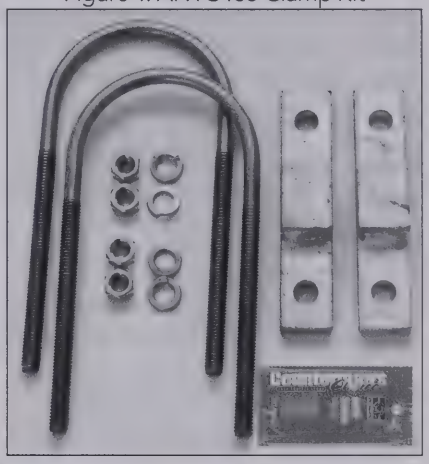


Figure 2: Typical Mounting Configuration

MOUNTING INSTRUCTIONS

1. The welded mounting rails are intended to be placed against the support structure when used with the supplied clamp set. When using an ANTC483 or other clamp set, the mounting rails should be turned to one side, out of contact with the support.
2. Apply anti-seize compound to ends of u-bolts. Place a loosely assembled clamp over the top of the mast. Feed the antenna base ferrule down through the clamp until aligned with the upper attachment point. Tighten down the hex nuts and straighten the antenna until clamped into a vertical position.
3. Attach and secure the lower antenna clamp with supplied hex nuts and lock washers, to provide reasonable pressure to the support structure and antenna base ferrule (Figure 2).
4. The antenna input connector is a Type N or 7-16 DIN Female. A 24" N-male jumper is provided for antennas with N input. Connect RF feed cable terminated with Type N or 7-16 DIN as required to antenna input connector. Secure all cables with cable ties.
5. Be sure to properly seal the input connector with waterproof tape or other sealing material. See Telewave TWDS-0502 for a recommended method of connector sealing.

TELEWAVE, INC.

INSTALLATION GUIDE FOR COLLINEAR ANTENNAS *F6, F8, AND F10 MODELS*

WARNING:

For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

IMPORTANT - BEFORE ASSEMBLING AND MOUNTING:

Carefully read these instructions and study the diagrams. Check to make sure you have all parts. The antenna and clamp kit are packaged as two separate items. Both clamps must be installed and properly spaced to prevent antenna rotation from wind load.

NOTE: To prevent possible damage to the ferrule and radome, tighten all nuts only until the lock washers are flattened. Then add 1/2 turn to each.

PARTS LIST

(1) Antenna assembly
(1) Jumper RG-213 N-male to N-male 24"
(provided only with N-terminated antennas)
(1) ANTC482 clamp kit

Clamp kit Contents (figure 1):

(8) galvanized clamp plates
(4) 1/2"-13 x 10" stainless steel threaded rods
(16) 1/2" stainless steel hex nuts
(16) 1/2" stainless steel split lock washers
(1) Anti-seize compound

MOUNTING INSTRUCTIONS

1. Apply anti-seize compound to threaded rod ends. Insert rods through dual clamps with hex nuts and lock washers in the middle of the clamps as shown in figure 2. Mount both clamps to the support structure with 2 single clamp plates, hex nuts, and lock washers. Arrange clamps so that 1"-2" of ferrule is exposed above and below the clamps. Be sure to allow sufficient thread length on the antenna side of the clamps.
2. Attach antenna clamp plate to the upper clamp set only, allowing maximum plate movement on the rods. Feed the antenna base ferrule down through the clamp until aligned with the upper attachment point. Partially tighten the hex nuts and straighten the antenna until clamped into a vertical position.
3. Attach and secure the lower antenna clamp with supplied hex nuts and lock washers, and tighten both clamps until the lock washers are flat plus 1/2 turn additional on each nut. (Figure 3).
4. The antenna input connector is a Type N or 7-16 DIN Female. A 24" N-male jumper is provided for antennas with N input. Connect RF feed cable terminated with Type N or 7-16 DIN as required to antenna input connector. Secure all cables with cable ties.
5. Be sure to properly seal the input connector with waterproof tape or other sealing material. See Telewave TWDS-0502 for a recommended method of connector sealing.

Figure 1:
Clamp Set Contents

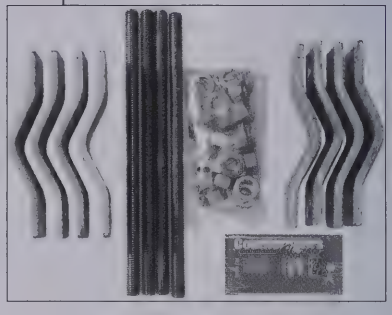


Figure 2:
Clamp Preassembly

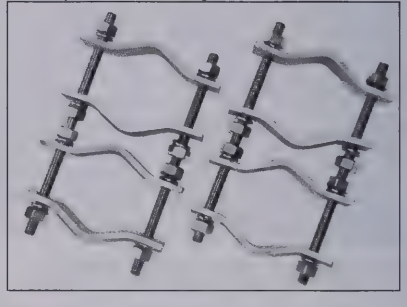
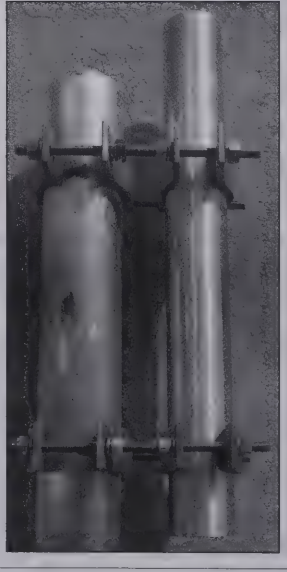


Figure 3: Assembly



All specifications subject to change without notice

TWDS-7083 Rev. 4/11

ANTC482 CLAMP SET
FOR COLLINEAR ANTENNAS

WARNING:

For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

IMPORTANT - BEFORE ASSEMBLING AND MOUNTING:

Carefully read these instructions and study the diagrams. Check to make sure you have all parts. The antenna and clamp kit are packaged as two separate items. Both clamps must be installed and properly spaced to prevent antenna rotation from wind load.

NOTE: To prevent possible damage to the ferrule and radome, tighten all nuts only until the lock washers are flattened. Then add 1/2 turn to each.

PARTS LIST (Figure 1)

(8) galvanized clamp plates
(4) 1/2"-13 x 10" stainless steel threaded rods
(16) 1/2" stainless steel hex nuts
(16) 1/2" stainless steel split lock washers
(1) Anti-seize compound

Figure 1:
Clamp Set Contents

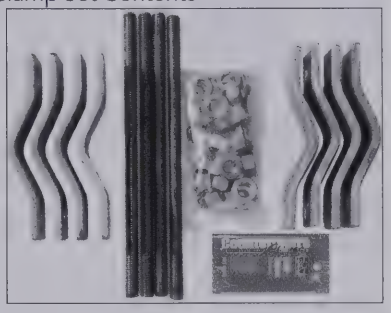
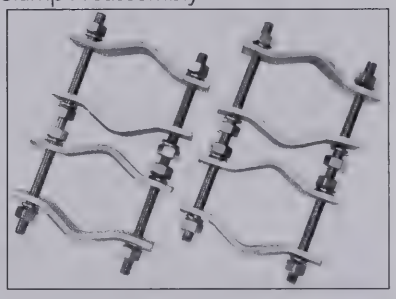


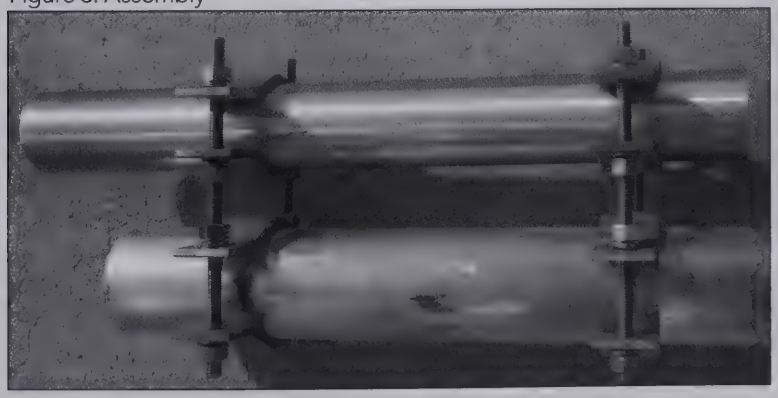
Figure 2:
Clamp Preassembly



MOUNTING INSTRUCTIONS

Apply anti-seize compound to threaded rod ends. Insert rods through dual clamps with hex nuts and lock washers in the middle of the clamps as shown in figure 2. Mount both clamps to the support structure with 2 single clamp plates, hex nuts, and lock washers. Arrange clamps so that 1"-2" of ferrule is exposed above and below the clamps. Be sure to allow sufficient thread length on the antenna side of the clamps.. Tighten clamps only until lockwashers are flat, then add ½ turn additional on each nut.

Figure 3: Assembly



Dimensional Data:

ANTC482 can be attached to square or round tower legs from 1.5" to 3.5" O.D.
Clamp holes are 9/16" diameter, and 4.75" inches center to center.

TELEWAVE, INC.

ANTC483/483SS CLAMP SET
FOR COLLINEAR ANTENNAS

WARNING:

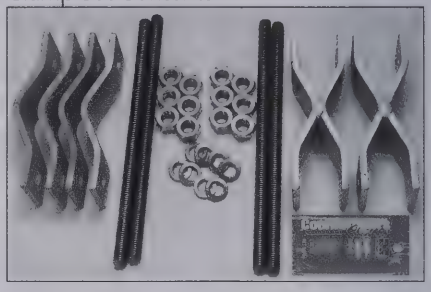
For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

IMPORTANT - BEFORE ASSEMBLING AND MOUNTING:

Carefully read these instructions and study the diagrams. Check to make sure you have all parts. The antenna and clamp kit are packaged as two separate items. Both clamps must be installed and properly spaced to prevent antenna rotation from wind load.

NOTE: To prevent possible damage to the ferrule and radome, tighten all nuts only until the lock washers are flattened. Then add 1/2 turn to each.

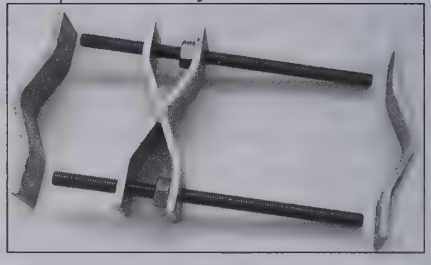
Figure 1:
Clamp Set Contents



PARTS LIST (Figure 1)

(4) Tower or antenna (single) galvanized clamp plates
(2) Welded (dual) galvanized clamp plates
(4) 1/2"-13 x 10" stainless steel threaded rods
(12) 1/2" stainless steel hex nuts
(8) 1/2" stainless steel split lock washers
(1) Anti-seize compound

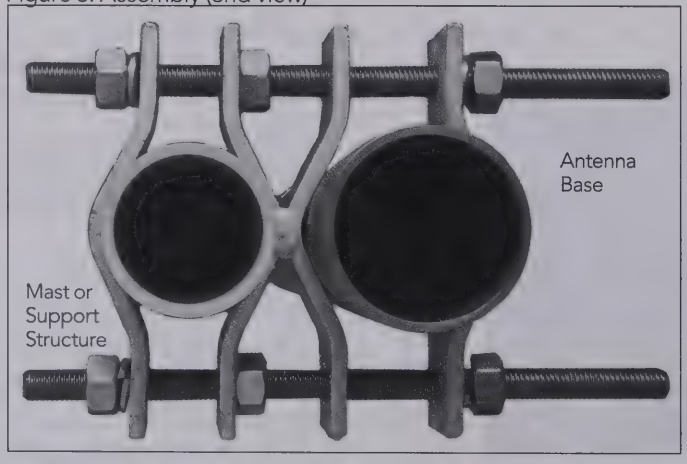
Figure 2:
Clamp Preassembly



MOUNTING INSTRUCTIONS

Apply anti-seize compound to threaded rod ends. Insert rods through dual clamps with hex nuts and lock washers in the middle of the clamps as shown in figure 2. Mount both clamps to the support structure with 2 single clamp plates, hex nuts, and lock washers. Arrange clamps so that 1"-2" of ferrule is exposed above and below the clamps. Be sure to allow sufficient thread length on the antenna side of the clamps. Tighten clamps only until lockwashers are flat, then add ½ turn additional on each nut.

Figure 3: Assembly (end view)



Dimensional Data:
ANTC483 and 483SS can be attached to square or round tower legs from 1.5" to 3.5" O.D.
Clamp holes are 9/16" diameter, and 4.75" inches center to center.

All specifications subject to change without notice
TWDS-7085 Rev. 10/13

DIPOLE ANTENNAS

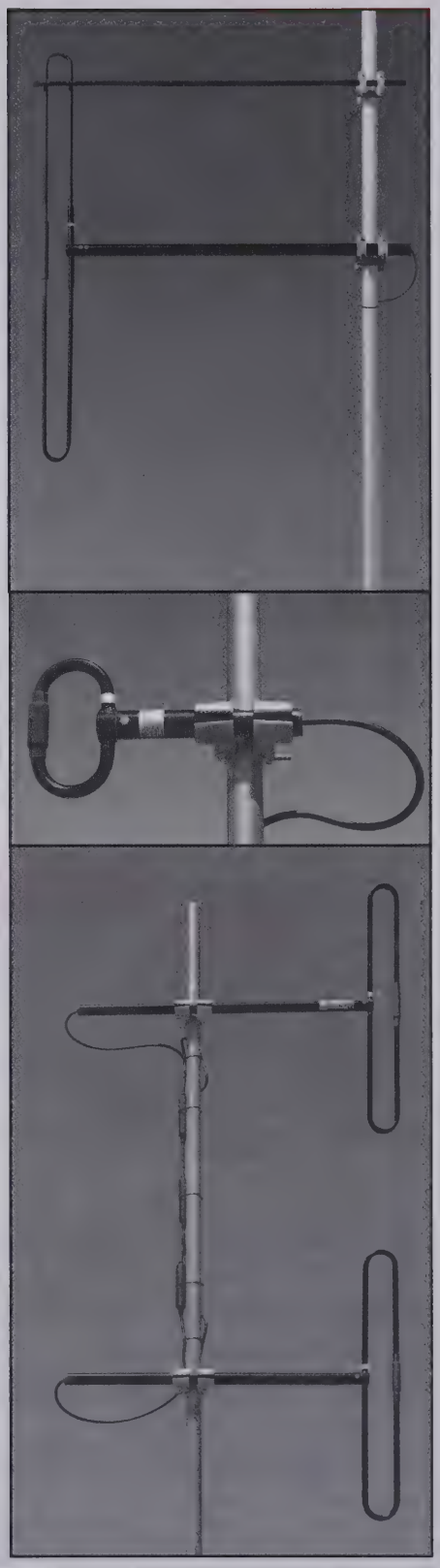
Telewave Dipole and Dipole Array antennas are built in the USA to withstand harsh conditions in the most demanding applications. Telewave dipoles are in service on mountaintops in Alaska, oil rigs in the Gulf of Mexico, Phillipine jungles, and the deserts of North Africa. Constructed from 6061-T6 aluminum, Telewave Dipoles feature broad bandwidth, and superior lightning impulse protection thanks to direct DC ground construction.

Telewave dipole antennas and arrays also feature a high-tech coating called *Txylan™*, which completely encapsulates all metal antenna components, providing total protection from water, corrosive chemicals, salt spray, and windblown abrasives. This smooth black coating also dramatically reduces surface friction, reducing and often preventing ice adhesion, while improving absorption of solar radiation.

All cabling is Mil-Spec RG-213/U, and all external connection points are sealed with Telewave's field-proven *MilleniumSeal™*, which provides permanent environmental protection. The RF feed cable and connection to each element is internally sealed within the element, eliminating any possibility of failure due to corrosion or ice expansion.

The standard connector type is N-Male, and 7-16 DIN can be installed as an option for high power applications. Gain ranges from 1 to 12 dBd, depending on configuration and number of elements. Each lowband model from 33-48 MHz includes a heavy-duty clamp set to attach the antenna boom to a mast or tower, as well as one element support boom with all required clamps.

All dipoles above 54 MHz are UPS shippable, and the horizontal pattern on all models is fully adjustable at any time during or after installation. This unique flexibility means that a single or multi-dipole array can provide a semi-directional, bi-directional, or nearly omni radiation pattern. Up to 15 degrees of mechanical and/or electrical tilt is also available for arrays of 2 or more dipoles, allowing a level of pattern control not possible with other antenna types.



TELEWAVE, INC.

33.5 - 41 MHz

ANT37D
DIPOLE ANTENNA

The Telewave ANT37D is a rugged, high-performance single dipole antenna designed for VHF lowband services, including public safety, utilities, paging links and military communication. This antenna provides 7.5 MHz bandwidth with no tuning required, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base to a solid, machined aluminum mounting block for maximum strength. A massive 3.5" diameter boom provides exceptional strength.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY

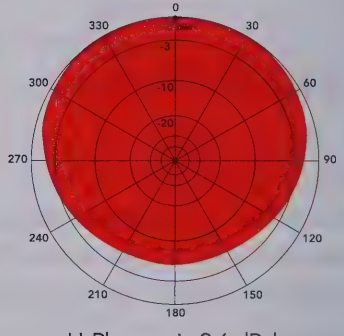
Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

ANT37D antennas include ANTC482 mounting hardware which will accommodate a 1.5"-3.5" diameter galvanized steel support pipe or tower leg. One ANTLBB element support boom with all required clamps is also included.

Due to the size and potential wind loading of this antenna, tower side mounting is recommended.

SPECIFICATIONS	
Frequency (continuous)	33.5-41 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Offset circular
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain	2.5 dBd (typ.)
Vertical beamwidth	78°
Horizontal beamwidth	170° (typ.)
Dipole dimensions (H x W)	145 x 9 in.
Boom dimensions (L x Dia.)	96 x 3.5 in.
Weight (antenna + clamps)	51 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	3.8 ft.²
Lateral thrust at 100 MPH	152 lb

ANT37D at 40 MHz



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

All specifications subject to change without notice

ANT40D
DIPOLE ANTENNA

The Telewave ANT40D is a rugged, high-performance single dipole antenna designed for VHF lowband services, including public safety, utilities, paging links or military communication. This antenna provides 7 MHz bandwidth with no tuning required, and multiple elements can be stacked for increased gain and pattern control.

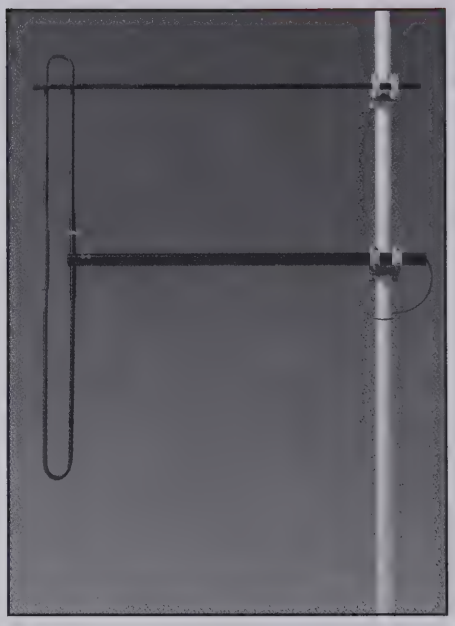
Each antenna is constructed with 6061-T6 aluminum, and is welded at the base to a solid, machined aluminum mounting block for maximum strength. A massive 3.5" diameter boom provides exceptional strength.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY

Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

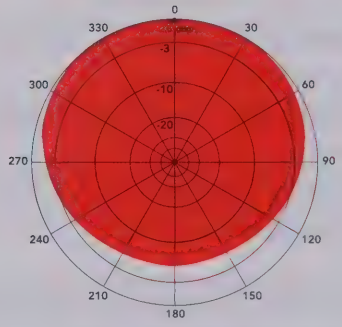
ANT40D antennas include ANTC482 mounting hardware which will accommodate a 1.5"-3.5" diameter galvanized steel support pipe or tower leg. One ANTLBB element support boom with all required clamps is also included.

Due to the size and potential wind loading of this antenna, tower side mounting is recommended.



SPECIFICATIONS	
Frequency (continuous)	37.5-44.5 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Offset circular
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (typ.)	2.5 dBd
Vertical beamwidth	78°
Horizontal beamwidth	Dependent on pattern
Dipole dimensions (H x W)	129 x 9 in.
Boom dimensions (L x Dia.)	96 x 3.5 in.
Weight (antenna + clamps)	46 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	3.6 ft.²
Lateral thrust at 100 MPH	142 lb

ANT40D at 40 MHz



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

ANT42D
DIPOLE ANTENNA

The Telewave ANT42D is a rugged, high-performance single dipole antenna designed for VHF lowband services, including public safety, utilities, paging links or military communication. This antenna provides 8.5 MHz bandwidth with no tuning required, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base to a solid, machined aluminum mounting block for maximum strength. A massive 3.5" diameter boom provides exceptional strength.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY

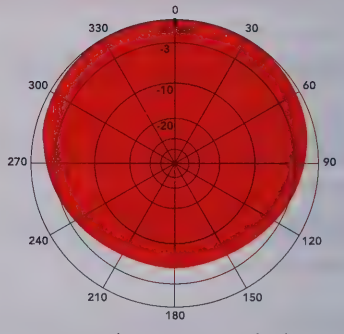
Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

ANT42D antennas include ANTC482 mounting hardware which will accommodate a 1.5"-3.5" diameter galvanized steel support pipe or tower leg. One ANTLBB element support boom with all required clamps is also included.

Due to the size and potential wind loading of this antenna, tower side mounting is recommended.

SPECIFICATIONS	
Frequency (continuous)	38.5-47 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Offset circular
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (typ.)	2.5 dBd
Vertical beamwidth	78 degrees
Horizontal beamwidth	180 degrees
Dipole dimensions (H x W)	126 x 9 in.
Boom dimensions (L x Dia.)	78 x 3.5 in.
Weight (antenna + clamps)	41 lb.
Dipole spacing from tower	69 in.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	3.3 ft.²
Lateral thrust at 100 MPH	132 lb

ANT42D at 42 MHz



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower - 69"

All specifications subject to change without notice

ANT44D
DIPOLE ANTENNA

The Telewave ANT44D is a rugged, high-performance single dipole antenna designed for VHF lowband services, including public safety, utilities, paging links or military communication. This antenna provides 6.5 MHz bandwidth with no tuning required, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base to a solid, machined aluminum mounting block for maximum strength. A massive 3.5" diameter boom provides exceptional strength.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY

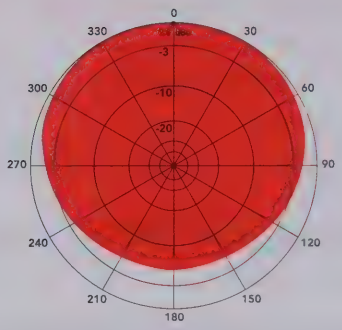
Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

ANT44D antennas include ANTC482 mounting hardware which will accommodate a 1.5"-3.5" diameter galvanized steel support pipe or tower leg. One ANTLBB element support boom with all required clamps is also included.

Due to the size and potential wind loading of this antenna, tower side mounting is recommended.

SPECIFICATIONS	
Frequency (continuous)	41.5-48 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Offset circular
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (typ.)	2.5 dBd
Vertical beamwidth	78 degrees
Horizontal beamwidth	Dependent on pattern
Dipole dimensions (H x W)	120 x 9 in.
Boom dimensions (L x Dia.)	78 x 3.5 in.
Weight (antenna + clamps)	41 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	3.2 ft.^{2}
Lateral thrust at 100 MPH	129 lb

ANT44D at 44 MHz



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

ANT50D
DIPOLE ANTENNA

The Telewave ANT50D is a rugged, high-performance single dipole antenna designed for VHF lowband services, including public safety, utilities, military communication, and amateur radio. This antenna provides 9 MHz bandwidth with no tuning required. The horizontal pattern is adjustable, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base to a solid, machined aluminum mounting block for maximum strength. A massive 3.5" diameter boom provides exceptional strength.

NOTE: THIS ANTENNA IS SHIPPED VIA TRUCK FREIGHT ONLY

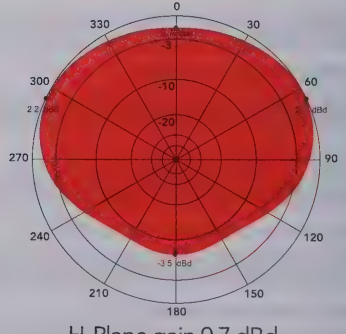
Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

ANT50D antennas include ANTC482 mounting hardware which will accommodate a 1.5"-3.5" diameter galvanized steel support pipe or tower leg. Due to the size and potential wind loading of this antenna, tower side mounting is recommended.

SPECIFICATIONS	
Frequency (continuous)	45-54 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Adjustable: offset circular or cardioid
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (dependent on pattern)	1-2.5 dBd
Vertical beamwidth	78°
Horizontal beamwidth	Dependent on pattern
Dipole dimensions (H x W)	108 x 9 in.
Boom dimensions (L x Dia.)	96 x 3.5 in.
Weight (antenna + clamps)	53 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	3.2 ft.²
Lateral thrust at 100 MPH	129 lb

H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

ANT50D at 49 MHz



H-Plane gain 0.7 dBd
3/8 wl. spacing from tower

All specifications subject to change without notice

TWDS-7067 Rev. 10/13

ANT70D
DIPOLE ANTENNA

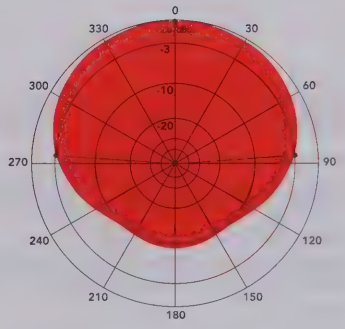
The Telewave ANT70D is a rugged, high-performance single dipole antenna designed for VHF midband services, including utilities, paging links, control stations, and military communication. This antenna provides 15 MHz bandwidth with no tuning required. The horizontal pattern is adjustable, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base for maximum strength.

Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

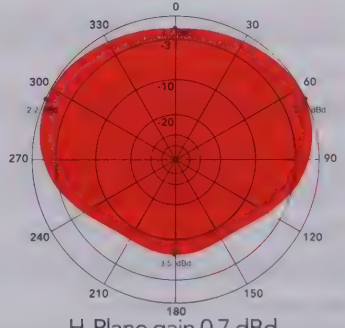
All components are at DC ground potential for lightning protection. A full clamp set is included for mounting to a 1.5"-3.5" diameter galvanized steel support pipe or tower leg.

SPECIFICATIONS	
Frequency (continuous)	63-78 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Adjustable for offset circular, cardioid, or bidirectional
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (dependent on pattern)	1-2.5 dBd
Vertical beamwidth	78°
Horizontal beamwidth	Dependent on pattern
Dipole dimensions (H x W)	76 x 7 in.
Boom dimensions (L x Dia.)	84 x 2.25 in.
Weight (antenna + clamps)	21 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	2.7 ft.²
Lateral thrust at 100 MPH	109 lb



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

ANT70D at 70 MHz



H-Plane gain 0.7 dBd
3/8 wl. spacing from tower

TELEWAVE, INC.

66 - 88 MHz

ANT75D
DIPOLE ANTENNA

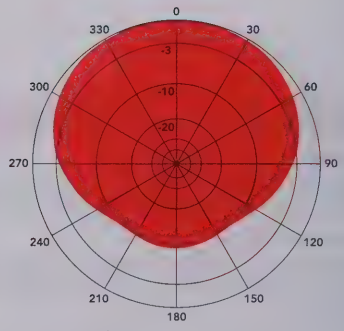
The Telewave ANT75D is a rugged, high-performance single dipole antenna designed for VHF midband services, including utilities, paging links, control stations, and military communication. This antenna provides 22 MHz bandwidth with no tuning required. The horizontal pattern is adjustable, and multiple elements can be stacked for increased gain and pattern control.

Each antenna is constructed with 6061-T6 aluminum, and is welded at the base for maximum strength.

Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

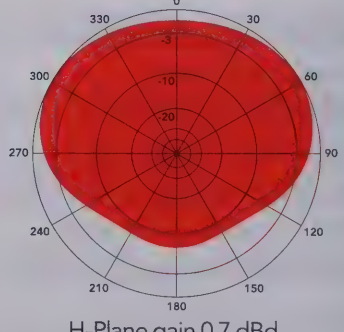
All components are at DC ground potential for lightning protection. A full clamp set is included for mounting to a 1.5"-3.5" diameter galvanized steel support pipe or tower leg.

SPECIFICATIONS	
Frequency (continuous)	66-88 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Adjustable: Offset circular, cardioid, or bidirectional
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (dependent on pattern)	1-2.5 dBd
Vertical beamwidth	78°
Horizontal beamwidth	Dependent on pattern
Dipole dimensions (H x W)	72 x 7 in.
Boom dimensions (L x Dia.)	65 x 2.25 in.
Weight (antenna + clamps)	21 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	2.3 ft.²
Lateral thrust at 100 MPH	92 lb



H-Plane gain 2.6 dBd
1/4 wl. spacing from tower

ANT75D at 75 MHz



H-Plane gain 0.7 dBd
3/8 wl. spacing from tower

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All specifications subject to change without notice
TWDS-7076 Rev. 8/12

ANT90D

DIPOLE ANTENNA - FM BROADCAST

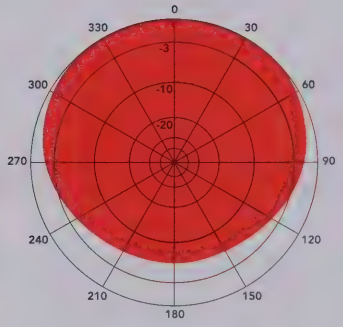
The Telewave ANT90D is a rugged, high-performance single dipole antenna designed for the FM broadcast band. This antenna provides 20 MHz bandwidth with no tuning required. The horizontal pattern is adjustable, and multiple elements can be stacked for increased gain and pattern control. This antenna is ideal for LPFM and translator stations for fill-in or small-market coverage.

Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each element is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

All components are at DC ground potential for lightning protection. A full clamp set is included for mounting to a 1.5"-3.5" diameter galvanized steel support pipe or tower leg.

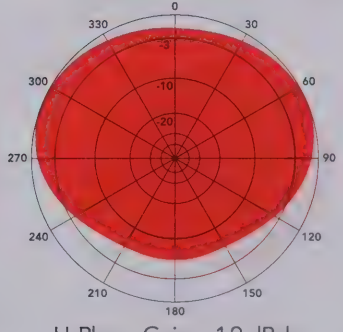
Up to 15 degrees of electrical uptilt or downtilt can be specified for multiple element arrays. Desired tilt angle must be included with the order, and consultation with our antenna engineering staff is requested.

SPECIFICATIONS	
Frequency (continuous)	88-108 MHz
Power rating (typ.)	500 watts
Impedance	50 ohms
VSWR	1.5:1 or less
Pattern	Adjustable: Offset circular, cardioid, or bidirectional
Lightning protection	DC Ground
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable
Gain (dependent on pattern)	1 - 2.05 dBd
Vertical beamwidth	1/4 wl. - 70°, 1/2 wl. - 73° 3/8 wl. - 84°
Horizontal beamwidth	1/4 wl. - 210°, 1/2 wl. - 88° 3/8 wl. - 240°
Dimensions (H x mast distance) max	56 x 57 in.
Weight (antenna + clamps)	18 lb.
Wind rating / 0.5" ice	125 / 100 MPH
Maximum exposed area	1.9 ft.²
Lateral thrust at 100 MPH	74 lb.



H-Plane, Gain = 2.1 dBd
Spaced 1/4 wl. from mast

ANT90D at 98 MHz



H-Plane, Gain = 1.9 dBd
Spaced 3/8 wl. from mast

ANT120D, D3

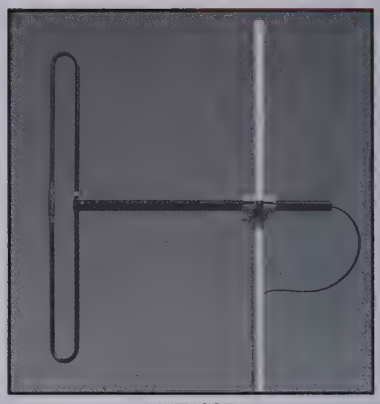
DIPOLE AND DIPOLE ARRAY

The Telewave ANT120D series consists of a rugged, high-performance single dipole and dual dipole array with a precision phasing harness, designed for aircraft communications, telemetry, and military applications. The horizontal pattern is adjustable, and each element can be configured for increased gain and pattern control.

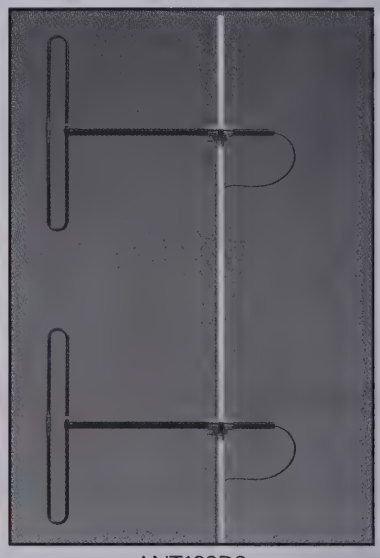
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each element is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 models. Desired tilt angle must be included with the order, and consultation with our antenna engineering staff is requested.



ANT120D

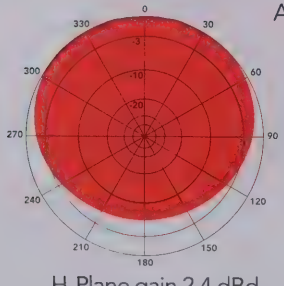


ANT120D3
(Harness not shown)
Support mast is customer-supplied

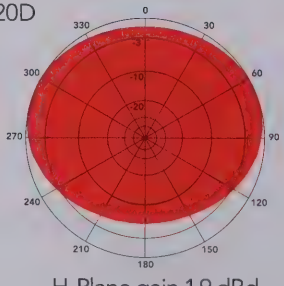
COMMON SPECIFICATIONS			
Frequency (continuous)	110-138 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating (D/D3)**	150/125 MPH
Impedance	50 ohms	**(with 0.5" ice) (D/D3)**	125/100 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT120D	ANT120D3
Gain (dependent on pattern)	1-2.5 dBd	3-5.6 dBd
Vertical beamwidth (3/8 wl.)	78°	34°
Dimensions (H x D) max	45 x 45 in.	119 x 45 in.
Weight (antenna + clamps)	7 lb.	15 lb.
Maximum exposed area	0.91 ft.²	1.9 ft.²
Lateral thrust at 100 MPH	36 lb.	75 lb.
Electrical uptilt / downtilt	N/A	1-15°

ANT120D

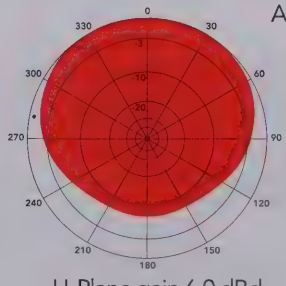


H-Plane gain 2.4 dBd
Spaced 1/4 wl. from mast



H-Plane gain 1.9 dBd
Spaced 3/8 wl. from mast

ANT120D3



H-Plane gain 6.0 dBd
Spaced 1/4 wl. from mast

H-Plane gain 5.6 dBd
Spaced 3/8 wl. from mast

All specifications subject to change without notice

ANT150D, D3, D6-9

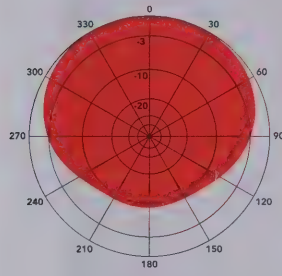
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT150D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The horizontal pattern is field-adjustable for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for applications including trunking, business, public safety, and amateur radio.

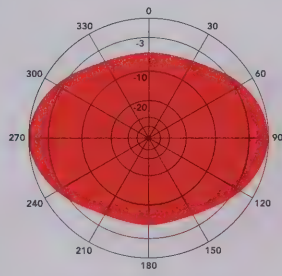
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each element is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

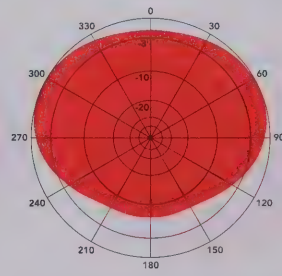
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included with the order, and consultation with our antenna engineering staff is requested.



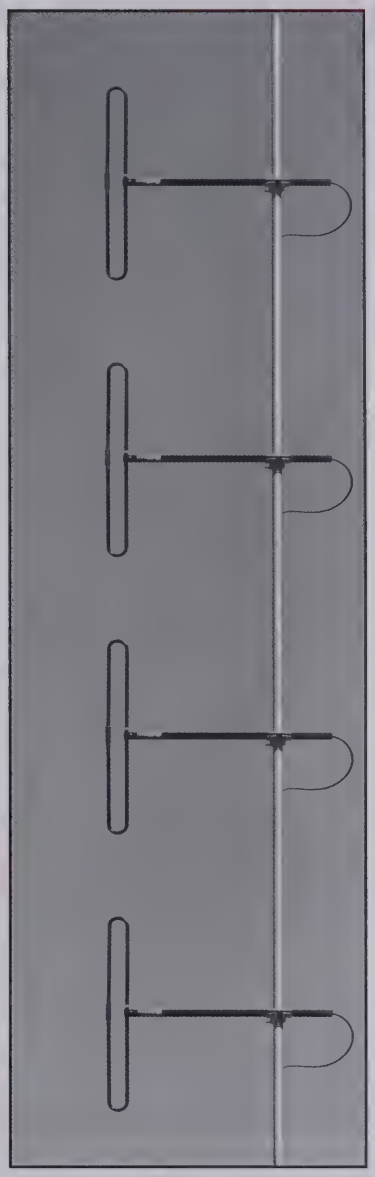
H-Plane: Gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane: Gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane: Gain 8.5 dBd
3/8 wl. spacing from tower



ANT150D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	138-174 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL	ANT150D	ANT150D3	ANT150D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	78°	37°	18°
Dimensions (H x D) max	34 x 33 in.	89 x 33 in.	195 x 33 in.
Weight (antenna + clamps)	6 lb.	14 lb.	28 lb.
Maximum exposed area	0.73 ft.²	1.6 ft.²	3.3 ft.²
Lateral thrust at 100 MPH	29 lbs	64 lbs	134 lbs
Electrical uptilt or downtilt	N/A	1-15°	1-15°

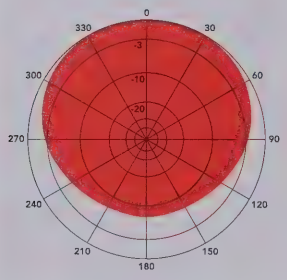
ANT150D7-12

DIPOLE ARRAY 7 TO 12 dBd

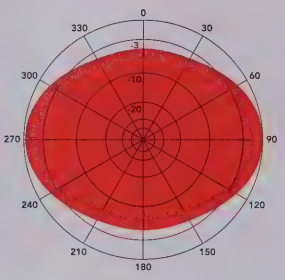
The Telewave ANT150D7-12 is an 8-element dipole array antenna with a precision phasing harness for optimum performance. The horizontal pattern is field-adjustable, to accommodate any current or future coverage requirements. The high gain, wide bandwidth, and high efficiency of the ANT150D7-12 are ideal for many applications, including trunking, business, public safety, and amateur radio.

Each antenna consists of two arrays of 4 elements with a power divider in the center, which greatly reduces feedline losses. Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

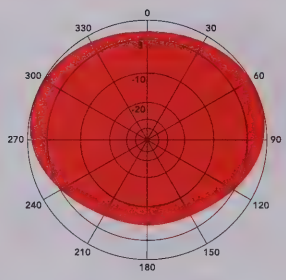
All components are at DC ground for lightning protection, and each element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.



H-Plane gain 12.2 dBd
1/4 wl. spacing from tower



H-Plane gain 11.8 dBd
1/2 wl. spacing from tower



H-Plane gain 12.7 dBd
3/8 wl. spacing from tower

SPECIFICATIONS			
Frequency (continuous)	138-174 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Female or 7-16 DIN (opt.) on power divider		
Gain (dependent on pattern)	7-12 dBd		
Vertical beamwidth (3/8 wl.)	8°		
Dimensions (H x D) max	407 x 36 in. (1/2 wl. spacing)		
Weight (antenna + clamps)	60 lb.		
Maximum exposed area	6.8 ft.^{2}		
Lateral thrust at 100 MPH	282 lb.		

ANT150D7-12
(Harness not shown)
Support mast is
customer-supplied

All specifications subject
to change without notice

TWDS-7070 Rev. 2/09

ANT220D, D3, D6-9

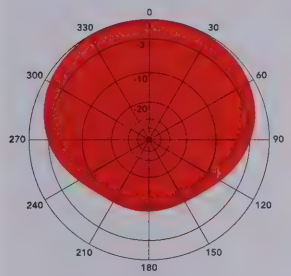
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT220D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including wireless PTC, trunking, business, public safety, and amateur radio.

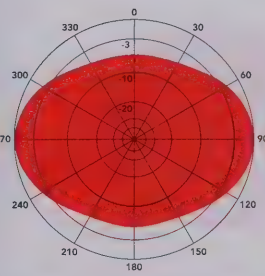
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

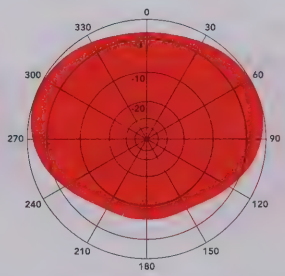
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



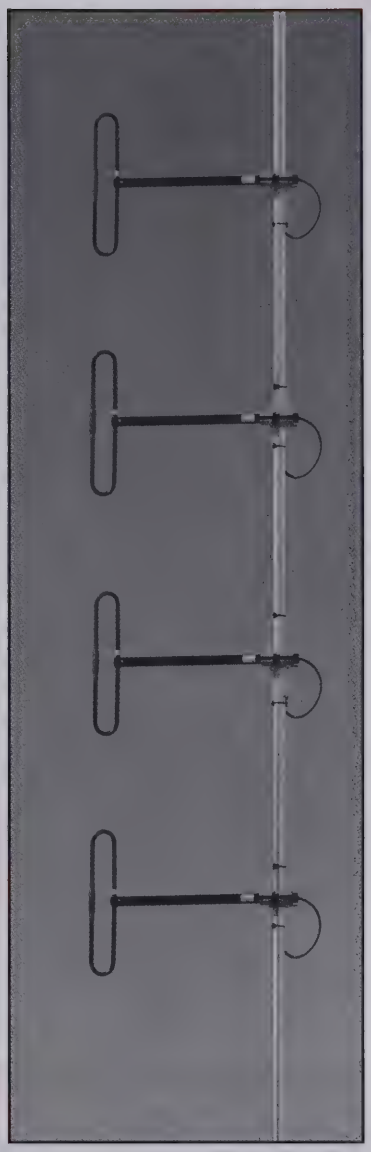
H-Plane: Gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane: Gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane: Gain 8.5 dBd
3/8 wl. spacing from tower



ANT220D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	216-252 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT220D	ANT220D3	ANT220D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 spacing)	78°	37°	18°
Dimensions (H x D) max	23 x 28 in.	61 x 28 in.	137 x 28 in.
Weight (antenna + clamps)	5 lb.	11 lb.	23 lb.
Maximum exposed area	0.51 ft.²	1.1 ft.²	2.3 ft.²
Lateral thrust at 100 MPH	20 lb.	43 lb.	94 lb.
Electrical uptilt / downtilt	N/A	1-15°	1-15°

ANT275D, D3, D6-9

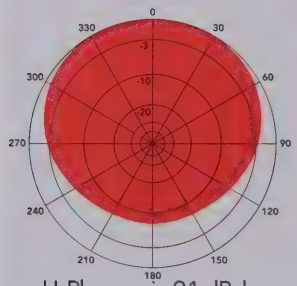
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT275D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including military communications, trunking, and business.

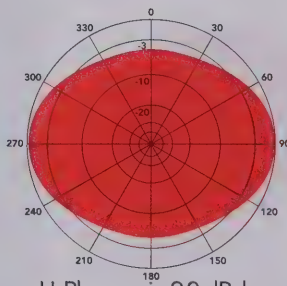
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

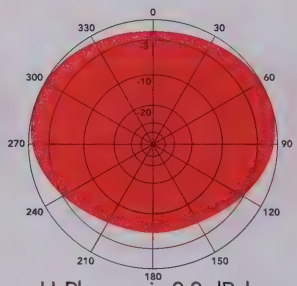
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



H-Plane gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane gain 9.0 dBd
1/2 wl. spacing from tower



H-Plane gain 8.8 dBd
3/8 wl. spacing from tower

COMMON SPECIFICATIONS			
Frequency (continuous)	230-330 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT275D	ANT275D3	ANT275D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	78°	34°	15°
Dimensions (H x D) (max)	19 x 20 in.	56 x 20 in.	120 x 20 in.
Weight (antenna + clamps)	6 lb.	11 lb.	19 lb.
Maximum exposed area	0.45 ft.²	1.0 ft.²	2.1 ft.²
Lateral thrust at 100 MPH	18 lb.	39 lb.	83 lb.
Electrical uptilt / downtilt	N/A	1-15°	1-15°

ANT275D6-9
(Harness not shown)
Support mast is
customer-supplied

All specifications subject
to change without notice

ANT350D, D3, D6-9

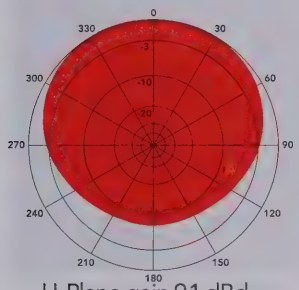
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT350D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including military communications, trunking, and business.

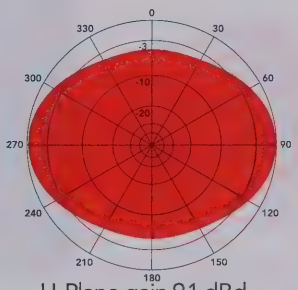
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

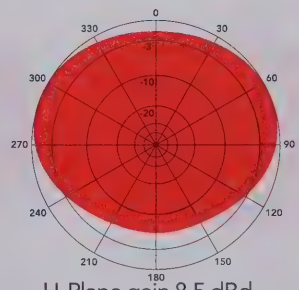
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



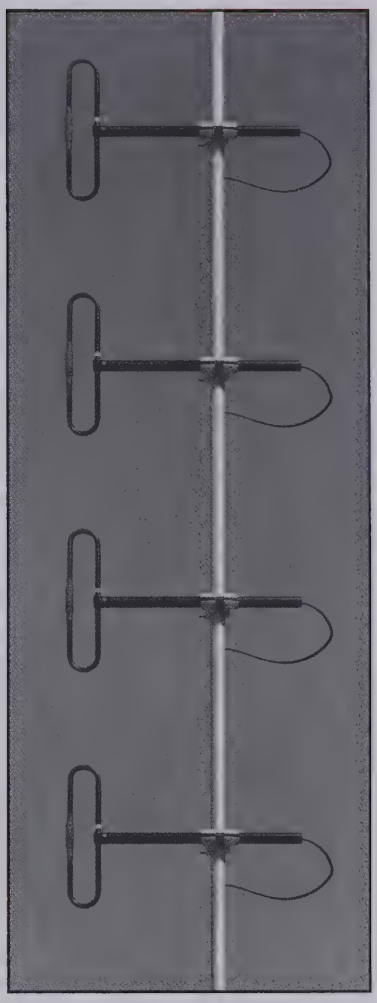
H-Plane gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane gain 8.5 dBd
3/8 wl. spacing from tower



ANT350D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	300-360 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT350D	ANT350D3	ANT350D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	71°	34°	15°
Dimensions (H x D) (max)	17 x 17 in.	43 x 17 in.	89 x 17 in.
Weight (antenna + clamps)	6 lb.	13 lb.	18 lb.
Maximum exposed area	0.36 ft.²	0.78 ft.²	1.7 ft.²
Lateral thrust at 100 MPH	15 lb.	34 lb.	73 lb.
Electrical uptilt / downtilt	N/A	1-15°	1-15°

ANT375D, D3, D6-9

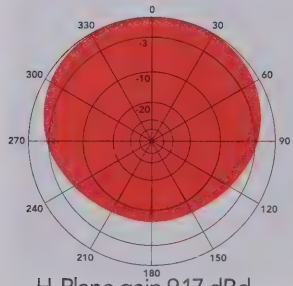
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT375D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including military communications, TETRA, and business.

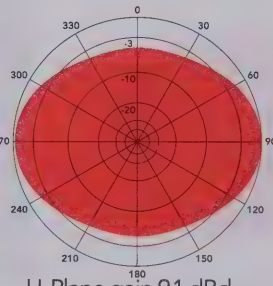
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

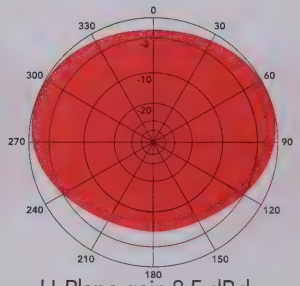
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



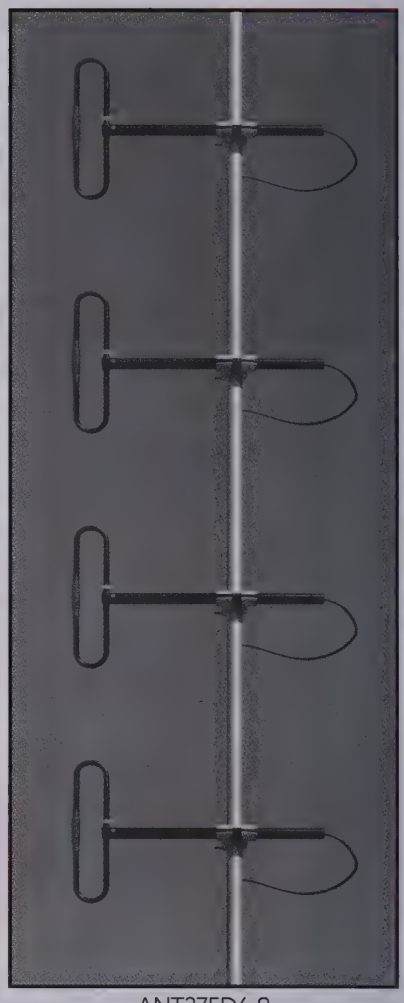
H-Plane gain 9.17 dBd
1/4 wl. spacing from tower



H-Plane gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane gain 8.5 dBd
3/8 wl. spacing from tower



ANT375D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	345-405 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT375D	ANT375D3	ANT375D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	71°	34°	15°
Dimensions (H x D) (max)	16 x 17 in.	39 x 17 in.	87 x 17 in.
Weight (antenna + clamps)	7 lb.	15 lb.	25 lb.
Maximum exposed area	0.35 ft.²	0.76 ft.²	1.7 ft.²
Lateral thrust at 100 MPH	14 lb.	32 lb.	70 lb.
Electrical uptilt / downtilt	N/A	1-15°	1-15°

All specifications subject
to change without notice

ANT400D, D3, D6-9

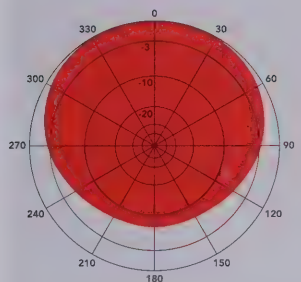
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT400D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including military communications, TETRA trunking, and amateur radio.

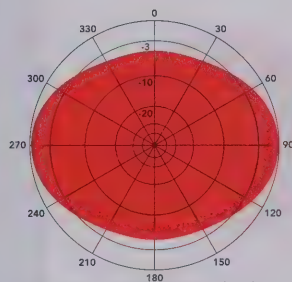
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

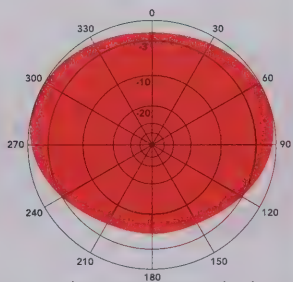
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



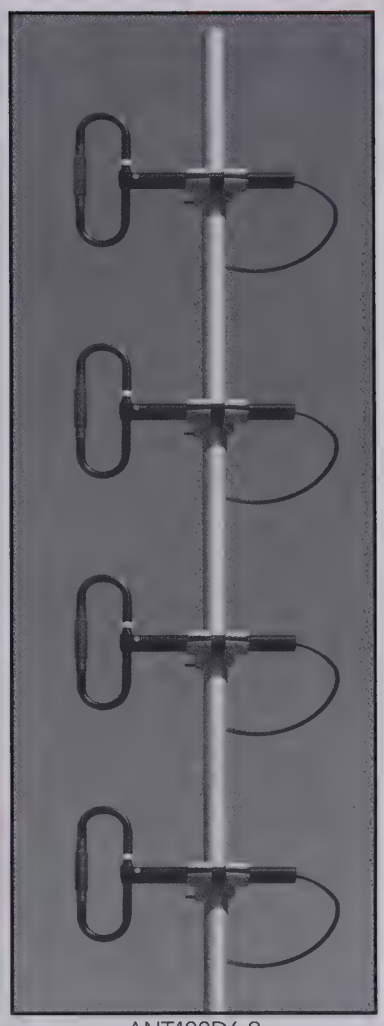
H-Plane gain 9.07 dBd
1/4 wl. spacing from tower



H-Plane gain 9.10 dBd
1/2 wl. spacing from tower



H-Plane gain 8.46 dBd
3/8 wl. spacing from tower



ANT400D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	360-450 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT400D	ANT400D3	ANT400D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	71°	34°	15°
Dimensions (H x D) (max)	15 x 14 in.	36 x 14 in.	74 x 14 in.
Weight (antenna + clamps)	6 lbs	13 lbs	18 lbs
Maximum exposed area	0.34 ft.²	0.72 ft.²	1.5 ft.²
Lateral thrust at 100 MPH	13 lbs	30 lbs	64 lbs
Electrical uptilt / downtilt	N/A	1-15°	1-15°

ANT425D, D3, D6-9

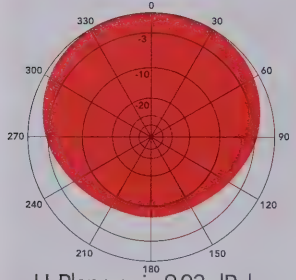
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT425D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including military communications, trunking, public safety, and amateur radio.

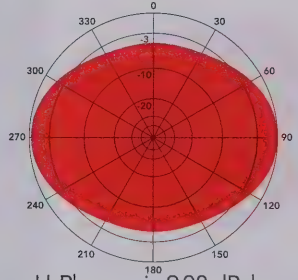
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

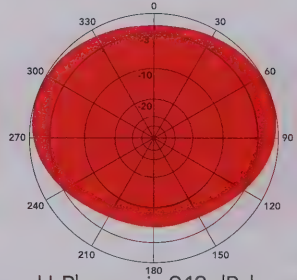
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



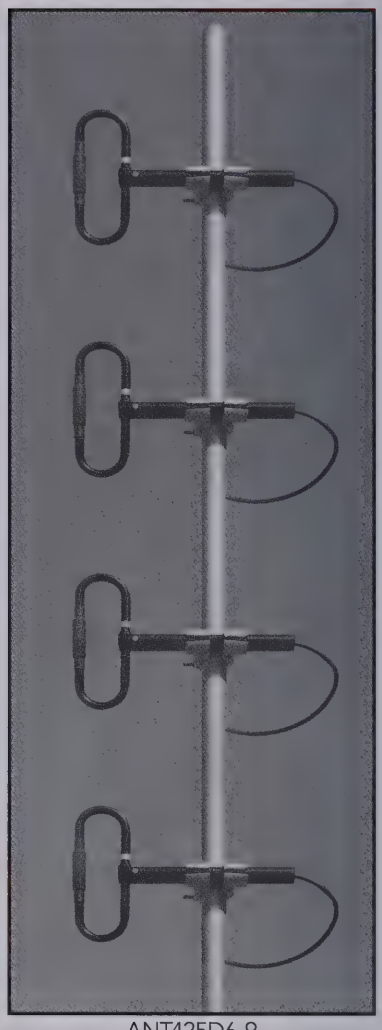
H-Plane gain 9.02 dBd
1/4 wl. spacing from tower



H-Plane gain 9.08 dBd
1/2 wl. spacing from tower



H-Plane gain 9.12 dBd
3/8 wl. spacing from tower



ANT425D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	380-470 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT425D	ANT425D3	ANT425D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	71°	34°	15°
Dimensions (H x D) (max)	13 x 17 in.	34 x 17 in.	77 x 17 in.
Weight (antenna + clamps)	7 lbs	15 lbs	32 lbs
Maximum exposed area	0.34 ft.²	0.72 ft.²	1.5 ft.²
Lateral thrust at 100 MPH	13 lbs	30 lbs	64 lbs
Electrical uptilt / downtilt	N/A	1-15°	1-15°

All specifications subject
to change without notice

TWDS-7105 Rev. 5/12

ANT450D, D3, D6-9

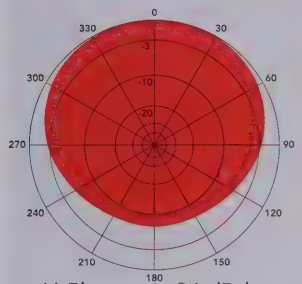
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT450D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including trunking, business, public safety, government, and amateur radio.

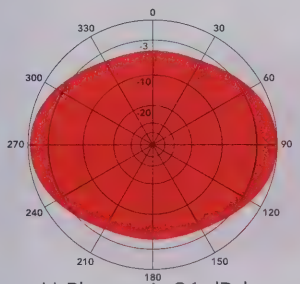
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

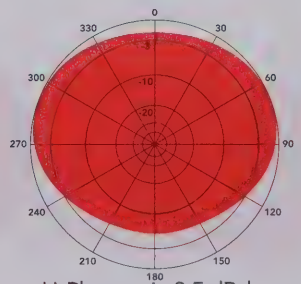
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



H-Plane gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane gain 8.5 dBd
3/8 wl. spacing from tower

ANT450D6-9
(Harness not shown)
Support mast is customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	406-512 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT450D	ANT450D3	ANT450D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	71°	34°	15°
Dimensions (H x D) (max)	13 x 12 in.	31 x 12 in.	71 x 12 in.
Weight (antenna + clamps)	6 lbs	13 lbs	18 lbs
Maximum exposed area	0.27 ft.²	0.68 ft.²	1.4 ft.²
Lateral thrust at 100 MPH	11 lbs	28 lbs	60 lbs
Electrical uptilt / downtilt	N/A	1-15°	1-15°

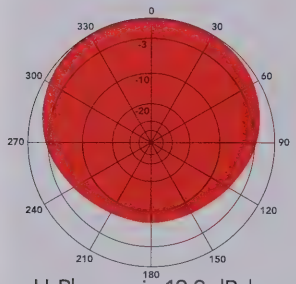
ANT450D7-12

DIPOLE ARRAY 7 TO 12 dBd

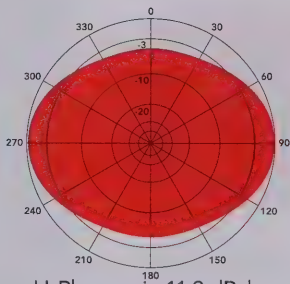
The Telewave ANT450D7-12 is an 8-element dipole array antenna with a precision phasing harness for optimum performance. The horizontal pattern is field-adjustable, to accommodate any current or future coverage requirements. The high gain, wide bandwidth, and high efficiency of the ANT450D7-12 are ideal for many applications, including trunking, business, public safety, and amateur radio.

Each antenna consists of two arrays of 4 elements with a power divider in the center, which greatly reduces feedline losses. Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

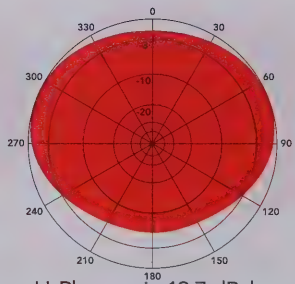
All components are at DC ground for lightning protection, and each element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.



H-Plane gain 12.2 dBd
1/4 wl. spacing from tower



H-Plane gain 11.8 dBd
1/2 wl. spacing from tower



H-Plane gain 12.7 dBd
3/8 wl. spacing from tower

SPECIFICATIONS			
Frequency (continuous)	406-512 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Female or 7-16 DIN (opt.) on power divider		
Gain (dependent on pattern)	7-12 dBd		
Vertical beamwidth (3/8 wl.)	7.5°		
Dimensions (H x D) max	148 x 12 in. (1/2 wl. spacing)		
Weight (antenna + clamps)	36 lb.		
Maximum exposed area	2.9 ft.²		
Lateral thrust at 100 MPH	135 lb.		

ANT450D7-12
(Harness not shown)
Support mast is
customer-supplied

All specifications subject
to change without notice

ANT500D, D3, D6-9

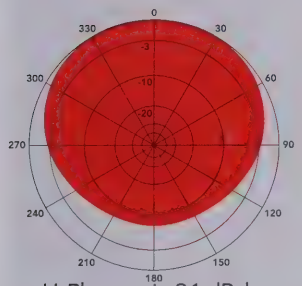
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT550D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including trunking, business, public safety, and government communication.

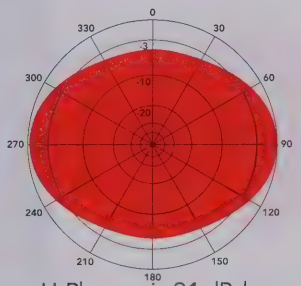
Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

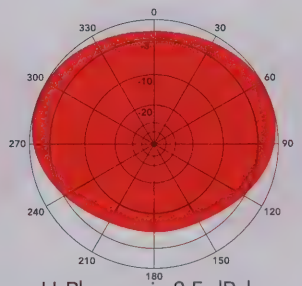
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



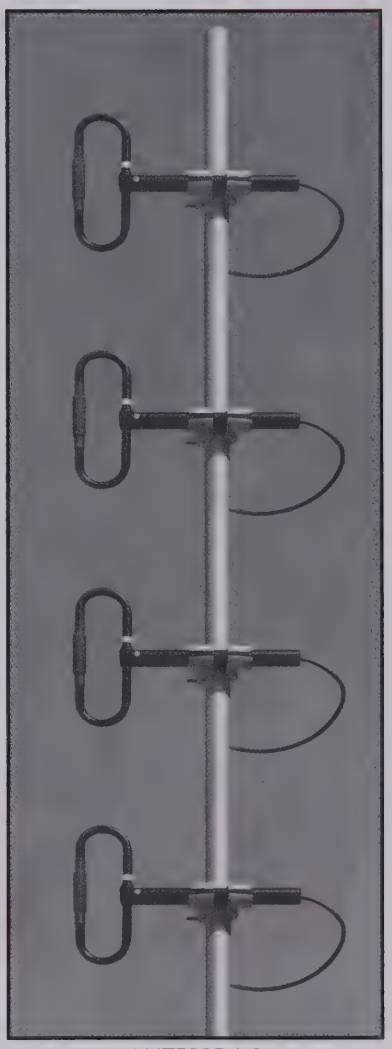
H-Plane gain 9.1 dBd
1/4 wl. spacing from tower



H-Plane gain 9.1 dBd
1/2 wl. spacing from tower



H-Plane gain 8.5 dBd
3/8 wl. spacing from tower



ANT500D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	470-550 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	175 MPH
Impedance	50 ohms	**(with 0.5" ice)**	150 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT500D	ANT500D3	ANT500D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	78°	33°	18°
Dimensions (H x D) (max)	13 x 11 in.	31 x 11 in.	65 x 11 in.
Weight (antenna + clamps)	7 lb.	14 lb.	28 lb.
Maximum exposed area	0.26 ft.²	0.56 ft.²	1.2 ft.²
Lateral thrust at 100 MPH	10 lb.	22 lb.	50 lb.

ANT750D, D3, D6-9

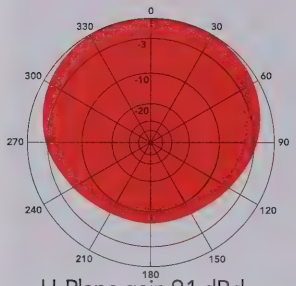
DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

The Telewave ANT750D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The wide bandwidth and high efficiency of these antennas make them ideal for many applications, including trunking, business, public safety, and goverment communication.

Each dipole element is constructed with 6061-T6 aluminum, and welded at the base for maximum strength. Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives. The phasing harness is fully sealed by Telewave's Millenium Seal™ technology.

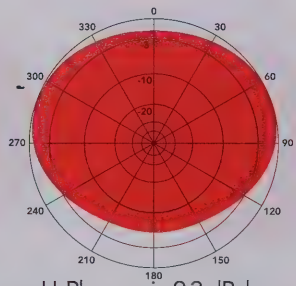
All components are at DC ground potential for lightning protection. Each dipole element includes a heavy-duty custom clamp set for mounting to a 1.5"-2.5" diameter galvanized steel support pipe or tower leg.

Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.

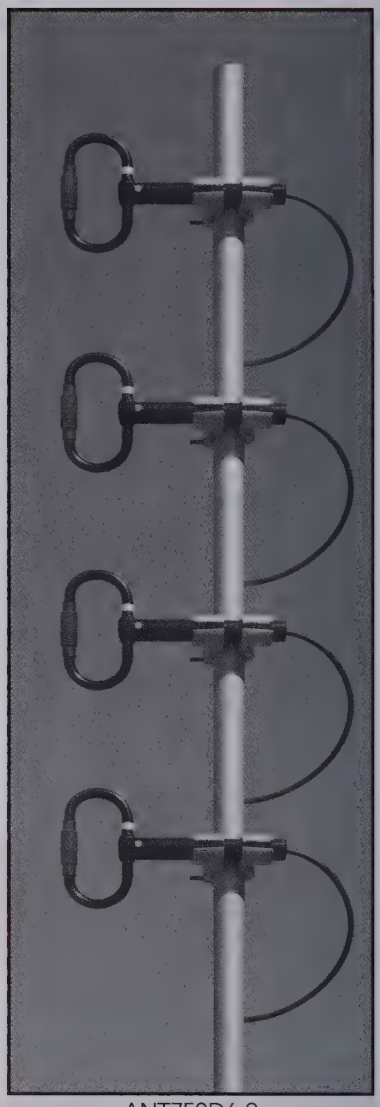


H-Plane gain 9.1 dBd
1/4 wl. spacing from tower

H-Plane gain 8.9 dBd
1/2 wl. spacing from tower



H-Plane gain 9.2 dBd
3/8 wl. spacing from tower



ANT750D6-9
(Harness not shown)
Support mast is
customer-supplied

COMMON SPECIFICATIONS			
Frequency (continuous)	700-825 MHz	**Lightning protection**	DC Ground
Power rating (typ.)	500 watts	**Wind rating**	200 MPH
Impedance	50 ohms	**(with 0.5" ice)**	175 MPH
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Male or 7-16 DIN (opt.) on harness feed cable		

MODEL SPECIFICATIONS	ANT750D	ANT750D3	ANT750D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	68°	33°	18°
Dimensions (H x D) (max)	8 x 7 in.	19 x 7 in.	42 x 7 in.
Weight (antenna + clamps)	7 lb.	14 lb.	28 lb.
Maximum exposed area	0.17 ft.²	0.42 ft.²	0.91 ft.²
Lateral thrust at 100 MPH	7 lb.	17 lb.	38 lb.

All specifications subject
to change without notice

ANT900D, D3, D6-9

DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd

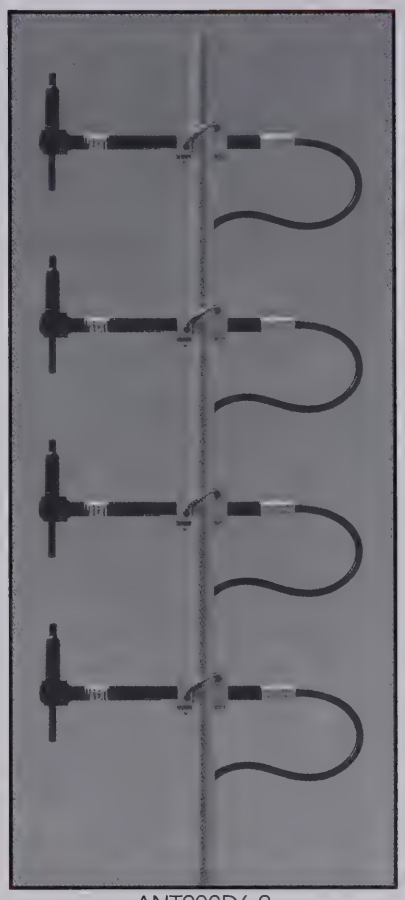
The Telewave ANT900D series consists of single, dual, and 4-element dipole array antennas with a precision phasing harness for optimum performance. The antenna horizontal pattern is field-adjustable, for any current or future coverage requirements. The exceptionally wide bandwidth and high efficiency of these antennas make them ideal for many applications, including trunking, cellular, data, and paging.

Each dipole element is constructed with 6061-T6 aluminum, fully welded to prevent intermodulation. The 2 and 4 element arrays utilize a power divider for minimum loss.

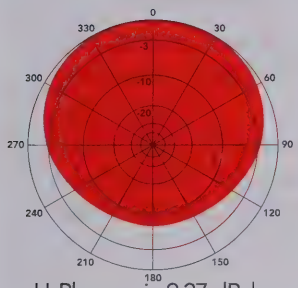
Each antenna is also completely sealed with our high-tech Txylan™ coating, which resists water and ice buildup, and provides exceptional protection from corrosive gases, UV radiation, salt spray, acid rain and windblown abrasives.

Each element includes a heavy-duty custom clamp set for mounting to a 0.5"-1.5" diameter galvanized steel support pipe or tower leg.

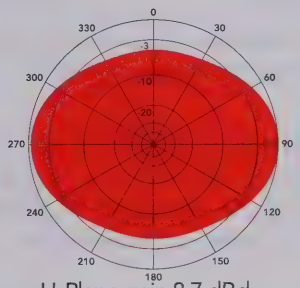
Up to 15 degrees of electrical uptilt or downtilt may be specified for D3 or D6-9 models. Desired tilt angle must be included on the order, and consultation with our antenna engineering staff is requested.



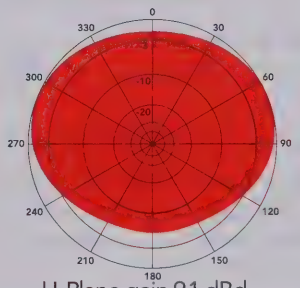
ANT900D6-9
(Harness not shown)
Support mast is customer-supplied



H-Plane gain 9.27 dBd
1/4 wl. spacing from tower



H-Plane gain 8.7 dBd
1/2 wl. spacing from tower



H-Plane gain 9.1 dBd
3/8 wl. spacing from tower

COMMON SPECIFICATIONS			
Frequency (continuous)	800-1000 MHz	**Wind rating**	200 MPH
Power rating (typ.)	500 watts	**(with 0.5" ice)**	175 MPH
Impedance	50 ohms		
VSWR	1.5:1 or less		
Pattern	Adjustable: Offset circular, cardioid, or bidirectional		
Termination	N-Female or 7-16 DIN (opt.) on power divider		

MODEL SPECIFICATIONS	ANT900D	ANT900D3	ANT900D6-9
Gain (dependent on pattern)	1-2.5 dBd	3-6 dBd	6-9 dBd
Vertical beamwidth (3/8 wl.)	84°	35°	17°
Dimensions (H x D) (max)	8 x 6 in.	21 x 6 in.	49 x 6 in.
Weight (antenna + clamps)	3 lb.	7 lb.	11 lb.
Maximum exposed area	0.1 ft.²	0.2 ft.²	0.4 ft.²
Lateral thrust at 100 MPH	4 lb.	9 lb.	20 lb.

TELEWAVE, INC.

FOLDED DIPOLE ANTENNAS 138-825 MHz
MOUNTING INSTRUCTIONS

WARNING:

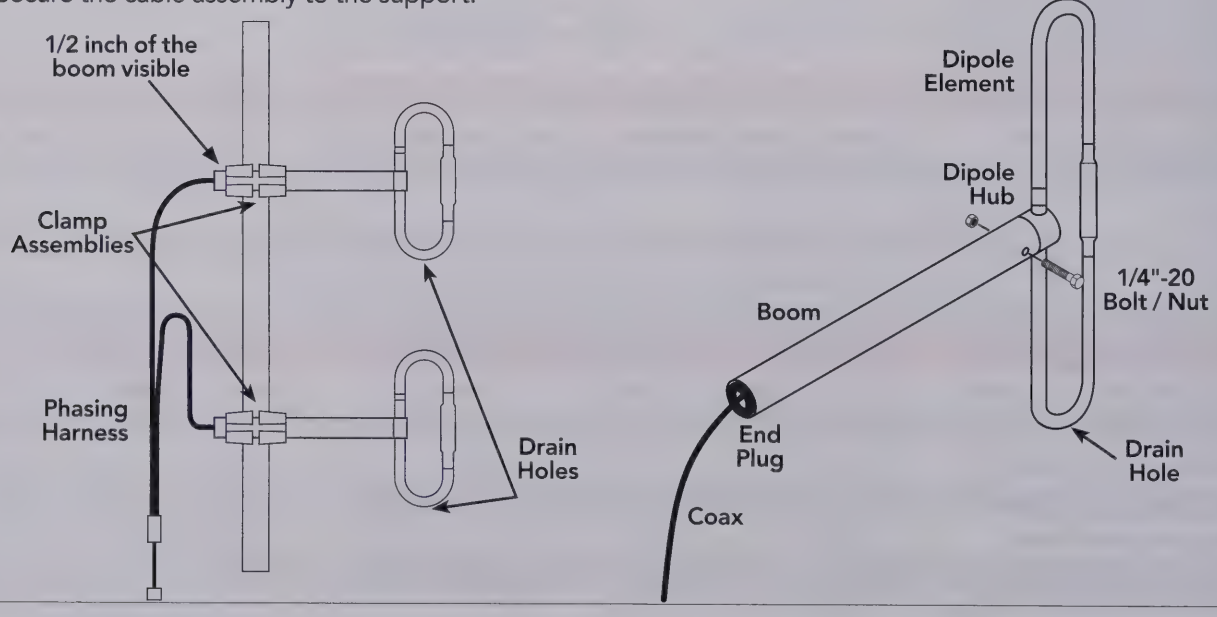
For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

PARTS LIST (for single dipole element):

(1)	Dipole and clamp set	(1)	1/4"-20 hex bolt	(1)	1/4"-20 lock nut
(2)	3/8" x 3.5" hex bolt	(2)	3/8" hex nut	(2)	3/8" split lock washer
(1)	Anti-seize compound				

ASSEMBLY INSTRUCTIONS

1. Remove components from shipping box and lay out the dipole and cable assemblies, ideally in a large, sheltered area. Arrange the assemblies in order as cable lengths allow.
2. Refer to the diagram. Slide the boom over the dipole hub, and align the holes in the boom with the holes in the hub. Apply anti-seize compound to the bolt end, then install and tighten the 1/4"-20 bolt and lock nut. Press the end plug located on the dipole feed cable into the end of the boom until it is firmly seated.
3. Refer to the appropriate Dipole Pattern Adjustment sheet for the frequency range of the antenna. Using the chart titled "Dipole Mounting and Mast Specifications", measure and mark the support structure for the proper dipole element spacing. Mount each dipole assembly to the mast with clamps as shown in the diagram. Locate the drain hole on each element, and be certain it is pointing down.
4. Refer to the chart titled "Mast to Dipole Dimensions", and determine the proper horizontal element spacing from the mast or support structure for the desired coverage pattern. **At least 1/2 inch of the boom should be visible on the back side of the clamps.**
5. Apply anti-seize compound to the bolt ends, then secure the dipole assemblies to the support with the supplied 3/8" nuts, washers and bolts, while adjusting each dipole position on the support. Tighten each nut until the lock washer is flat, then add 1/2 turn. Be sure to properly seal the input connector with waterproof tape or other sealing material. See Telewave TWDS-0502 for a recommended method of connector sealing.
6. Secure the cable assembly to the support.

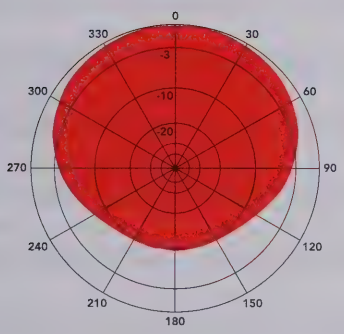


All specifications subject to change without notice

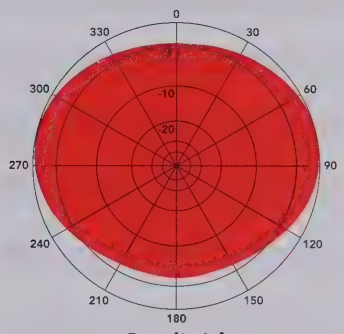
DIPOLE PATTERN ADJUSTMENT

Telewave folded dipoles are field adjustable to provide different horizontal patterns and gain values. The horizontal spacing from tower between the dipole and the support mast or tower leg controls this adjustment. Review the patterns below to determine which is best suited to your range area requirements. Use the chart on the next page to find the appropriate dimension for antenna to mast spacing. The drawing at the bottom shows how this measurement is made and the vertical spacing to be used for multi-element arrays.

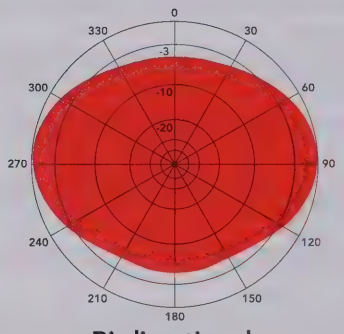
Horizontal radiation patterns



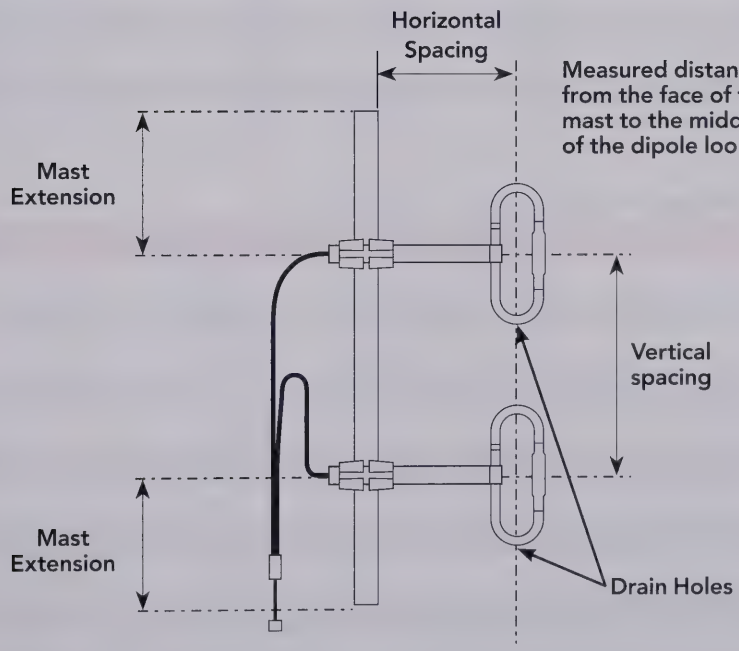
Offset Circular
1/4 wavelength spacing



Cardioid
3/8 wavelength spacing



Bi-directional
1/2 wavelength spacing


Horizontal Spacing
Measured distance from the face of the mast to the middle of the dipole loop.
Mast Extension
Vertical spacing
Mast Extension
Drain Holes

IMPORTANT: Be sure that the drain holes are on the bottom when the elements are installed.

DIPOLE PATTERN ADJUSTMENT

DIPOLE MOUNTING AND MAST SPECIFICATIONS

Mast lengths shown are minimum acceptable lengths to insure proper pattern control. Mast extension is applied at top and bottom of array. Longer masts are acceptable, but the dipole or array must be centered on the support to prevent beam tilt. The clamps provided with the dipoles will work properly to attach the dipole boom to a mast that is between 1.5 to 2.5 inches in diameter. To attach to smaller supports (1-1.5" diameter), use ANTS420 shims. This allows direct mounting to small towers such as the Rohn 25 and 45.

MAST MINIMUM LENGTH AND ELEMENT VERTICAL SPACING (at midband)

ANTENNA	MAST LENGTH	MAST EXTENSION	VERTICAL SPACING	MINIMUM MAST TYPE
ANT37D				
ANT40D		CONTACT TELEWAVE FOR MOUNTING ADVICE		
ANT50D				
ANT70D	6'-7"	3'-3.5"	N/A	2.0" Schedule 40 Galvanized Pipe
ANT75D	6'-7"	3'-3.5"	N/A	2.0" Schedule 40 Galvanized Pipe
ANT75D3	16'-1"	3'-3.5"	9'-7"	2.0" Schedule 40 Galvanized Pipe
ANT90D	5'-6"	2'-9"	N/A	2.0" Schedule 40 Galvanized Pipe
ANT90D3	12'-11"	2'-9"	7'-5"	2.0" Schedule 40 Galvanized Pipe
ANT120D	4'-2"	2'-1"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT120D3	10'	23"	6'-2"	2.0" Schedule 40 Galvanized Pipe
ANT120D6-9	21'	23"	6'-2"	2.0" Schedule 40 Galvanized Pipe
ANT150D	3'	18"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT150D3	7'-5"	18"	4'-5"	1.5" Schedule 40 Galvanized Pipe
ANT150D6-9	16'-3"	18"	4'-5"	2.0" Schedule 40 Galvanized Pipe
ANT150D7-12	33'-11"	18"	4'-5"	2.0" Schedule 40 Galvanized Pipe
ANT220D	2'-4"	14"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT220D3	5'-6"	14"	3'-1.5"	1.5" Schedule 40 Galvanized Pipe
ANT220D6-9	11'-8"	14"	3'-1.5"	1.5" Schedule 40 Galvanized Pipe
ANT275D	2'	12"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT275D3	4'-8"	12"	2'-8"	1.5" Schedule 40 Galvanized Pipe
ANT275D6-9	10'	12"	2'-8"	1.5" Schedule 40 Galvanized Pipe

ELEMENT HORIZONTAL SPACING FROM TOWER (at midband)

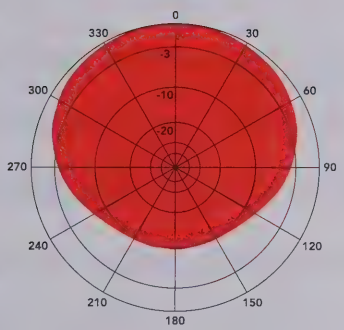
MODEL	1/4 wl. OFFSET CIRCULAR	3/8 wl. CARDIOID	1/2 wl. BI-DIRECTIONAL
ANT37D	6'-3"	N/A	N/A
ANT40D	5'-9"	N/A	N/A
ANT50D	4'-7"	6'-11"	N/A
ANT70D	3'-3"	5'	MAX EXTENSION
ANT75D, D3	3'	4'-6"	MAX EXTENSION
ANT90D, D3	2'-4"	3'-6"	4'-9"
ANT120D, D3, D6-9	22"	2'-9"	3'-9"
ANT150D, D3, D6-9, D7-12	18"	2'-3"	2' 9"
ANT220D, D3, D6-9	12"	18"	2'
ANT275D, D3, D6-9	10"	15"	20"

NOTE: The physical characteristics of large dipoles require a correction factor from calculated values for mast spacing. The dimensions in the above table include this correction.

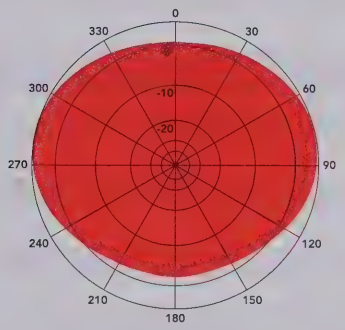
DIPOLE PATTERN ADJUSTMENT

Telewave folded dipoles are field adjustable to provide different horizontal patterns and gain values. The horizontal spacing from tower between the dipole and the support mast or tower leg controls this adjustment. Review the patterns below to determine which is best suited to your range area requirements. Use the chart on the next page to find the appropriate dimension for antenna to mast spacing. The drawing at the bottom shows how this measurement is made and the vertical spacing to be used for multi-element arrays.

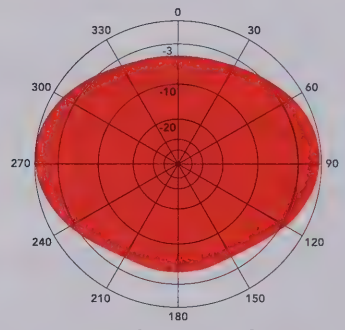
Horizontal radiation patterns



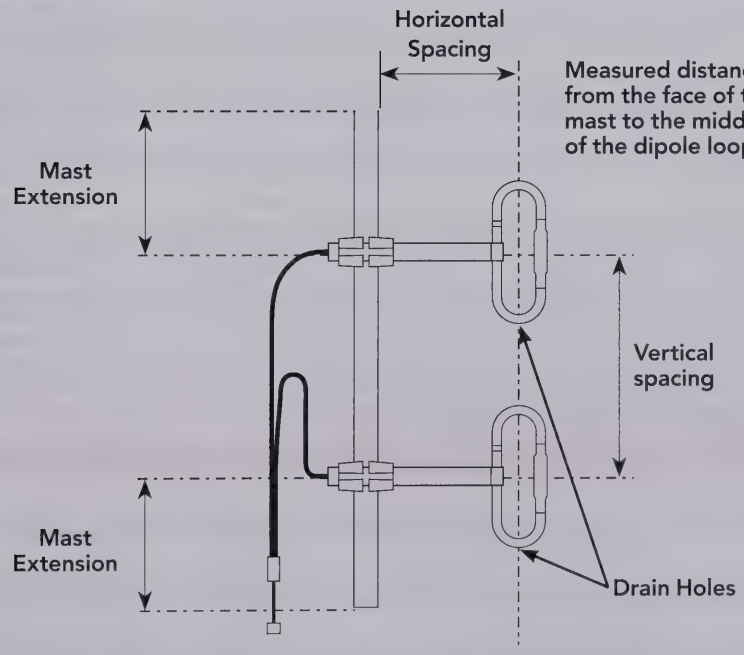
Offset Circular
1/4 wavelength spacing



Cardioid
3/8 wavelength spacing



Bi-directional
1/2 wavelength spacing


Horizontal Spacing
Measured distance from the face of the mast to the middle of the dipole loop.
Mast Extension
Vertical spacing
Mast Extension
Drain Holes

IMPORTANT: Be sure that the drain holes are on the bottom when the elements are installed.

DIPOLE PATTERN ADJUSTMENT

DIPOLE MOUNTING AND MAST SPECIFICATIONS

Mast lengths shown are minimum acceptable lengths to insure proper pattern control. Mast extension is applied at top and bottom of array. Longer masts are acceptable, but the dipole or array must be centered on the support to prevent beam tilt. The clamps provided with the dipoles will work properly to attach the dipole boom to a mast that is between 1.5 to 2.5 inches in diameter. To attach to smaller supports (1-1.5" diameter), use ANTS420 shims. This allows direct mounting to small towers such as the Rohn 25 and 45.

MAST MINIMUM LENGTH AND ELEMENT VERTICAL SPACING (at midband)

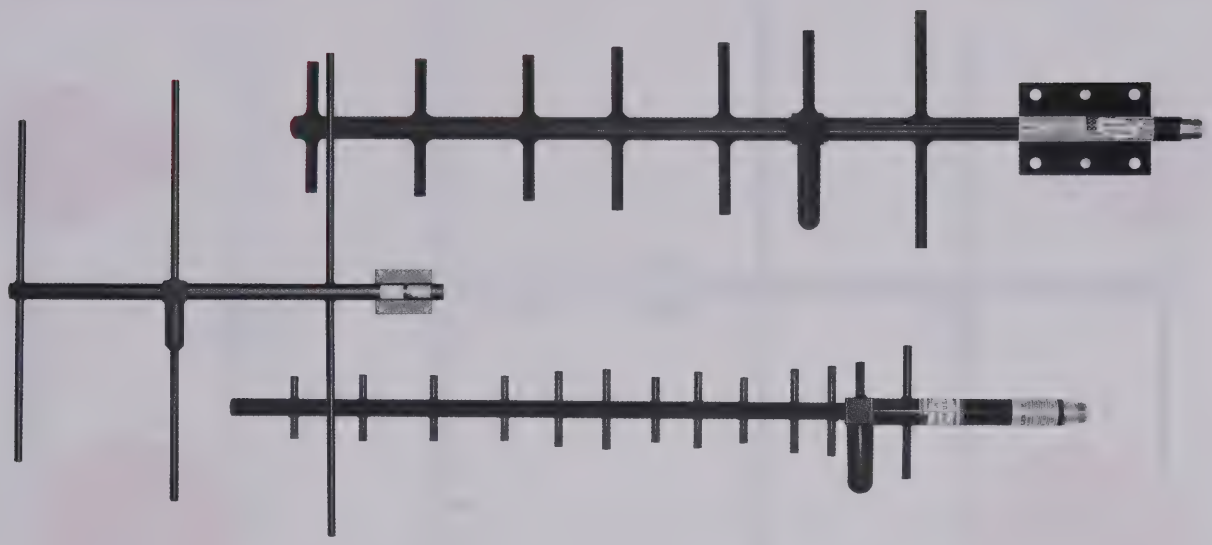
ANTENNA	MAST LENGTH	MAST EXTENSION	VERTICAL SPACING	MINIMUM MAST TYPE
ANT350D	20"	10"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT350D3	3'-7"	10"	23"	1.5" Schedule 40 Galvanized Pipe
ANT350D6-9	7'-5"	10"	23"	1.5" Schedule 40 Galvanized Pipe
ANT375D	16"	8"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT375D3	3'-3"	8"	24"	1.5" Schedule 40 Galvanized Pipe
ANT375D6-9	7'-3"	8"	24"	1.5" Schedule 40 Galvanized Pipe
ANT400D	15"	7.5"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT400D3	3'	7.5"	22"	1.5" Schedule 40 Galvanized Pipe
ANT400D6-9	6'-2"	7.5"	22"	1.5" Schedule 40 Galvanized Pipe
ANT425D	14"	7"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT425D3	2'-11"	7"	21"	1.5" Schedule 40 Galvanized Pipe
ANT425D6-9	6'-5"	7"	21"	1.5" Schedule 40 Galvanized Pipe
ANT450D	13"	6.5"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT450D3	2'-7"	6.5"	19.375"	1.5" Schedule 40 Galvanized Pipe
ANT450D6-9	5'-11"	6.5"	19.375"	1.5" Schedule 40 Galvanized Pipe
ANT450D7-12	12'-4"	6.5"	19.375"	1.5" Schedule 40 Galvanized Pipe
ANT500D	13"	6.5"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT500D3	2'-7"	6.5"	17.5"	1.5" Schedule 40 Galvanized Pipe
ANT500D6-9	5'-5"	6.5"	17.5"	1.5" Schedule 40 Galvanized Pipe
ANT550D	12"	6"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT550D3	1'-10"	5.5"	16"	1.5" Schedule 40 Galvanized Pipe
ANT550D6-9	4'-6"	5.5"	16"	1.5" Schedule 40 Galvanized Pipe
ANT750D	8"	4"	N/A	1.5" Schedule 40 Galvanized Pipe
ANT750D3	19"	4"	11.625"	1.5" Schedule 40 Galvanized Pipe
ANT750D6-9	3'-6"	4"	11.625"	1.5" Schedule 40 Galvanized Pipe
ANT900D	6.5"	3.25"	N/A	0.5" Schedule 40 Galvanized Pipe
ANT900D3	22"	4"	14"	0.5" Schedule 40 Galvanized Pipe
ANT900D6-9	4'-2"	4"	14"	0.75" Schedule 40 Galvanized Pipe

ELEMENT HORIZONTAL SPACING FROM TOWER (at midband)

MODEL NUMBER	1/4 wl. OFFSET CIRCULAR	3/8 wl. CARDIOID	1/2 wl. BI-DIRECTIONAL
ANT350D, D3, D6-9	8.4"	12.6"	16.8"
ANT375D, D3, D6-9	7.4"	11.1"	14.8"
ANT400D, D3, D6-9	6.9"	10.3"	13.7"
ANT425D, D3, D6-9	7"	10.5"	14"
ANT450D, D3, D6-9, D7-12	6"	9"	12.1"
ANT500D, D3, D6-9	5.4"	8.1"	10.9"
ANT550D, D3, D6-9	5"	7.5"	10"
ANT750D, D3, D6-9	3.7"	5.5"	7.3"
ANT900D, D3, D6-9	3.1"	4.6"	6.2"

All specifications subject to change without notice

YAGI ANTENNAS



Telewave Yagi antennas are some of the strongest and most reliable in the industry. These antennas are designed using sophisticated CAD and pattern modelling software, and manufactured to endure the harshest environments without failure or degradation of performance. Telewave Yagi antennas are fabricated from all-aluminum or all-brass stock, using solid elements and heavy-wall tubular booms, with fully welded or soldered joints. For the most extreme environments, certain models can be fabricated from stainless steel for ultimate durability.

The RF connector is permanently mounted in end of the boom to form a single, integrated unit, except for the Y10H series, which uses a weatherproof pigtail. A solid internal conductor is sealed within the boom, and feeds a sealed active element, eliminating any possibility of failure due to corrosion or ice expansion. Telewave Yagi antennas also feature our high-tech coating called Txylan™, which completely encapsulates all our Yagi antennas, providing total protection from water, corrosive chemicals, salt spray, and windblown abrasives. This smooth black coating also dramatically reduces surface friction, reducing and often preventing ice adhesion, while improving absorption of solar radiation.

The standard connector type is N Female, and a 7-16 DIN-F can be installed as an option for higher power applications. Gain ranges from 5 to 12 dBd, and higher gains are available on request. Certain models are available with a 90-degree feed option, which allows Heliax® or other hardline coax to be terminated directly at the antenna, without additional flexible jumpers. All Telewave Yagis can be ordered to accommodate vertical or horizontal polarization, and many models allow the use of our Universal Mount, which provides a high degree of adjustability for mounting antennas to non-vertical supports. Many models from 450-2700 MHz are small enough to be handheld, and are ideal for interference location and field testing.

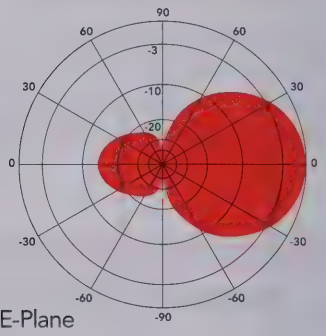
TELEWAVE, INC.

138 - 152 MHz

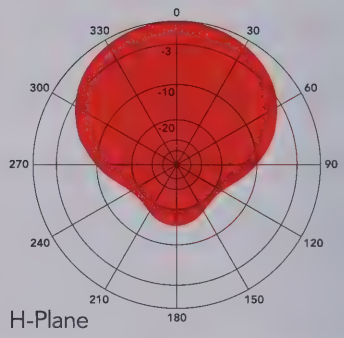
ANT144Y5-WR

YAGI ANTENNA 5 dBd

ANT144Y5-WR at 147 MHz



E-Plane
Gain: 5.0 dBd



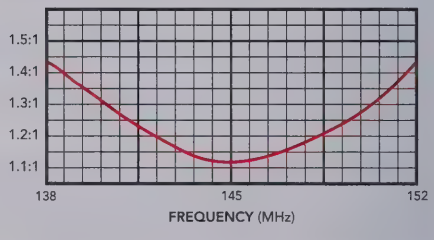
H-Plane
Gain: 5.0 dBd

The Telewave ANT144Y5-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio, and solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT144Y5-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

TYPICAL VSWR RESPONSE



SPECIFICATIONS			
Frequency (continuous)	138-152 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	38 x 42 in.
Power rating (typ)	500 watts	**Antenna weight**	17 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	20 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	64° / 120°	**Exposed area (flat plate equiv.)**	1.1 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	44 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

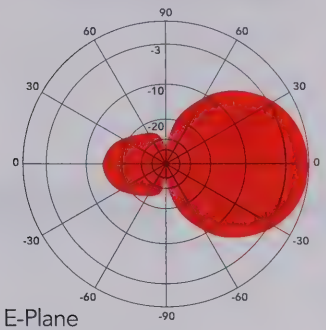
All specifications subject to change without notice

TWDS-7087 Rev. 10/13

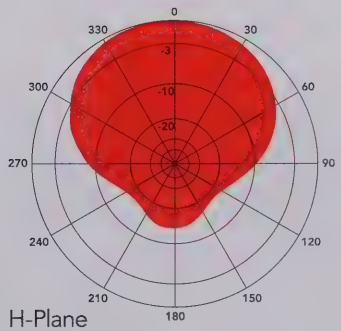
ANT150Y7-WR

YAGI ANTENNA 5 dBd

ANT150Y7-WR at 156 MHz



E-Plane
Gain: 5.1 dBd



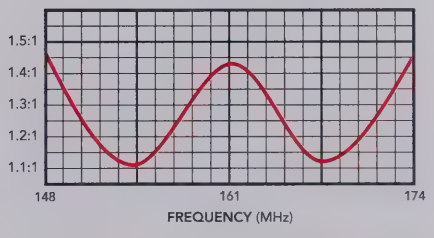
H-Plane
Gain: 5.1 dBd

The Telewave ANT150Y7-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio, and solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT150Y7-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

TYPICAL VSWR RESPONSE

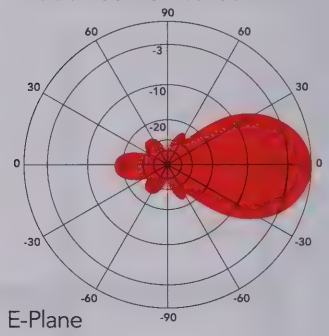


SPECIFICATIONS			
Frequency (continuous)	148-174 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	38 x 40.5 in.
Power rating (typ)	500 watts	**Antenna weight**	16 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	19 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	64° / 114°	**Exposed area (flat plate equiv.)**	1.0 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	41 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

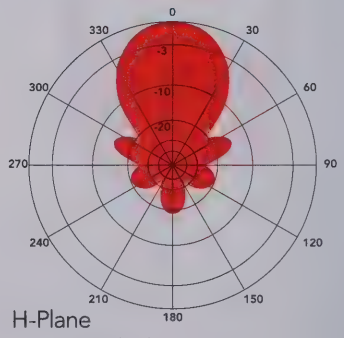
ANT150Y10H

YAGI ANTENNA 10 dBd

ANT150Y10H at 156 MHz



E-Plane
Gain: 10.1 dBd



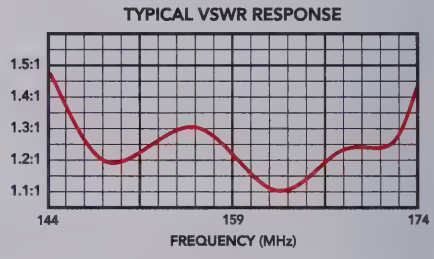
H-Plane
Gain 10.1 dBd

The Telewave ANT150Y10H is a very rugged, high performance directional antenna. Six elements provide a minimum of 10 dBd gain, high front-to-back ratio, and wide band capability. The elements are constructed from solid aluminum to prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards. All antenna components are at DC ground for lightning protection.

The ANT150Y10H includes a heavy duty clamp set, which allows the antenna boom to be rotated for polarization adjustment. (Please contact Telewave if horizontal operation is planned.)

This clamp set secures the antenna to a vertical or horizontal mast or tower support from 1.5"-3.5" O.D. The antenna is shipped unassembled to reduce cost, and is easily assembled in the field with color coded marks.



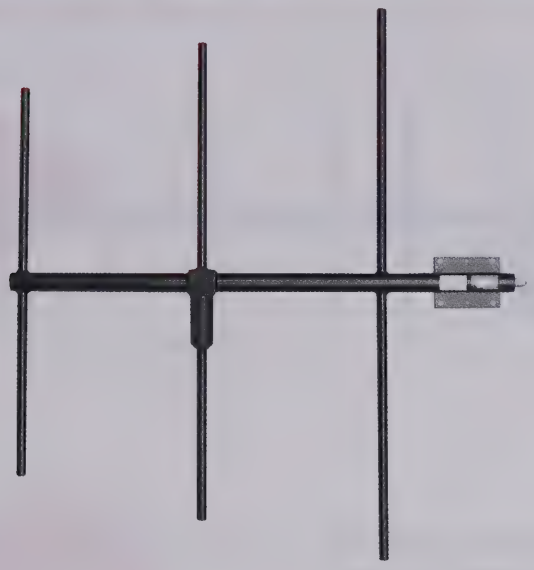
SPECIFICATIONS			
Frequency (continuous)	144-174 MHz	**Elements**	6
Gain (typ)	10 dBd	**Dimensions (L x H)**	96 x 40 in.
Power rating (typ)	500 watts	**Antenna weight**	33 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	37 lb.
Front to back ratio (min)	17 dB	**Wind rating / with 0.5" ice**	150 / 100 MPH
Beamwidth V / H	44° / 47°	**Exposed area (flat plate equiv.)**	1.7 ft.²
Pattern / Polarization	Directional / Vertical (Horizontal opt. if specified)	**Lateral thrust at 100 MPH** (40 psf - flat plate equiv.)	67 lb.
Termination	N Female or 7-16 DIN (opt)	**Bending moment at mast clamp**	222 ft. lb.

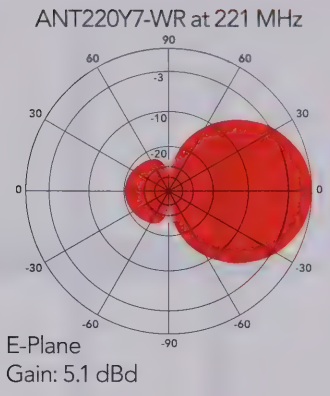
All specifications subject to change without notice

TWDS-7041 Rev. 10/13

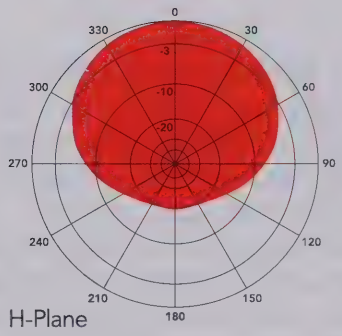
ANT220Y7-WR

YAGI ANTENNA 5 dBd





E-Plane
Gain: 5.1 dBd

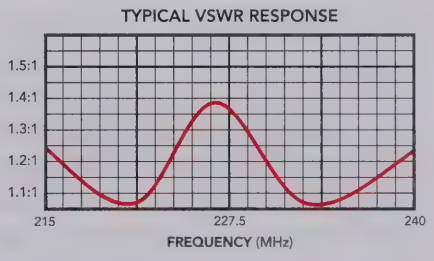


H-Plane
Gain: 5.1 dBd

The Telewave ANT220Y7-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio, and solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength. The ANT220Y7-WR is an excellent choice for wireless PTC systems in urban or rural areas.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT220Y7-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.



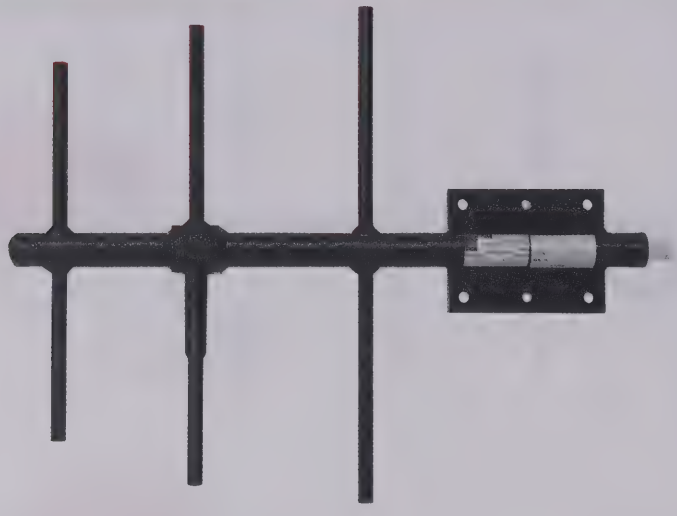
SPECIFICATIONS			
Frequency (continuous)	216-240 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	30 x 30 in.
Power rating (typ)	500 watts	**Antenna weight**	13 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	16 lb.
Front to back ratio (min)	15 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	64° / 114°	**Exposed area (flat plate equiv.)**	0.7 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	28 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

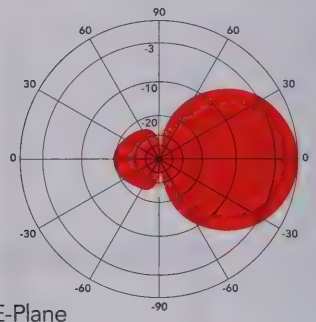
370 - 410 MHz

ANT390Y5-WR

YAGI ANTENNA 5 dBd



ANT390Y5-WR at 390 MHz



E-Plane
Gain: 5.05 dBd

H-Plane
Gain: 5.14 dBd

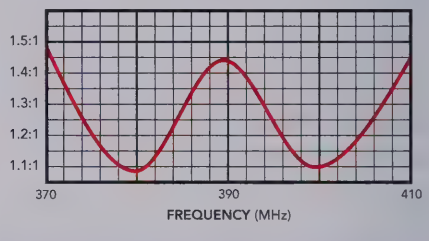
The Telewave ANT390Y5-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT390Y5-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE

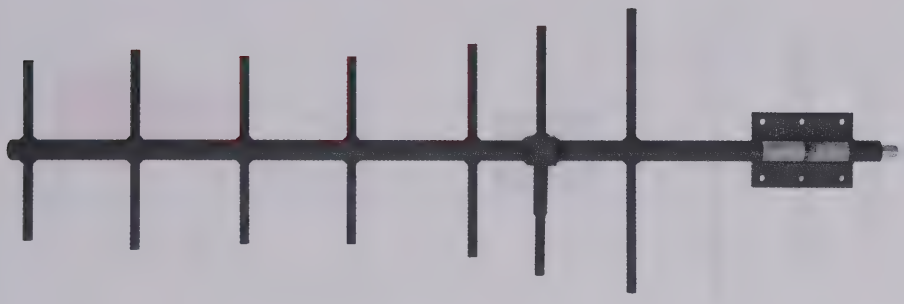


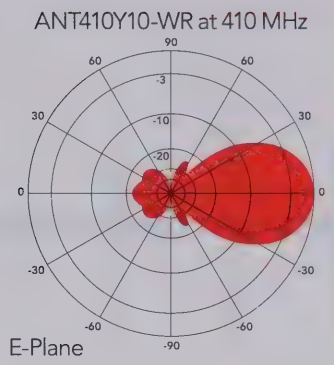
SPECIFICATIONS			
Frequency (continuous)	370-410 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	21 x 16 in.
Power rating (typ)	500 watts	**Antenna weight**	4.5 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	8 lb.
Front to back ratio (min)	19 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	60° / 110°	**Exposed area (flat plate equiv.)**	0.530 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	21 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

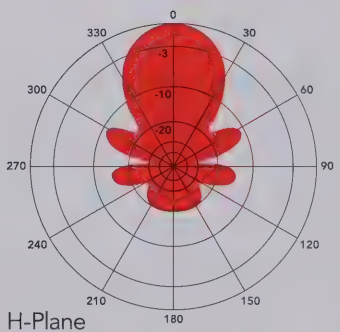
ANT410Y10-WR

YAGI ANTENNA 10 dBd





E-Plane
Gain: 10.1 dBd



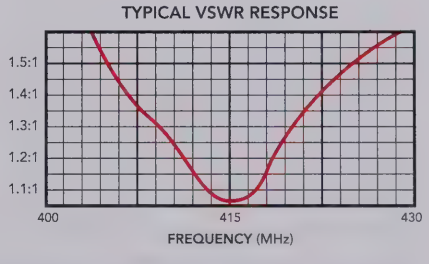
H-Plane
Gain: 10.1 dBd

The Telewave ANT410Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT410Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



SPECIFICATIONS			
Frequency (continuous)	405-420 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	45 x 17 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

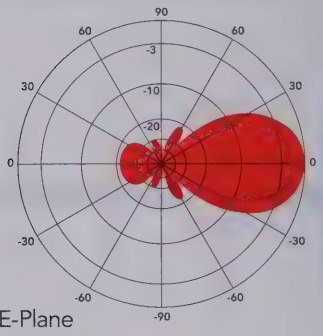
TELEWAVE, INC.

415 - 450 MHz

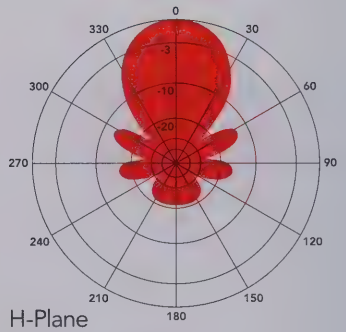
ANT420Y10-WR

YAGI ANTENNA 10dBd

ANT420Y10-WR at 420 MHz



E-Plane
Gain: 10.1 dBd



H-Plane
Gain: 10.1 dBd

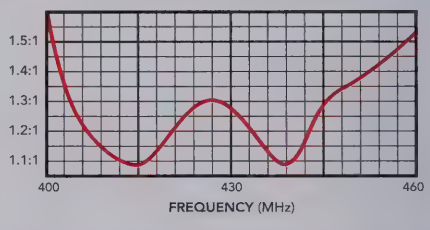
The Telewave ANT420Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT420Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE



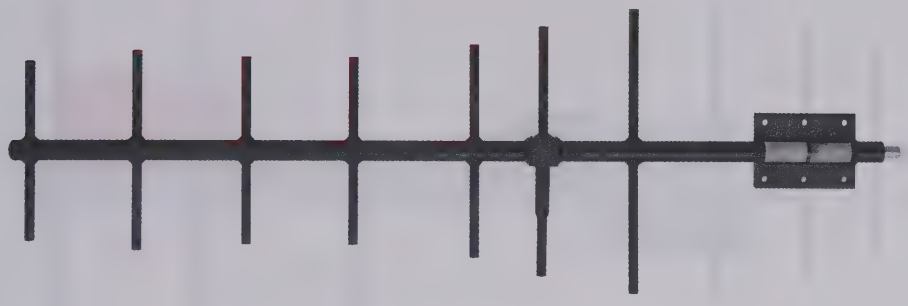
SPECIFICATIONS			
Frequency (continuous)	415-450 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	41 x 13 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

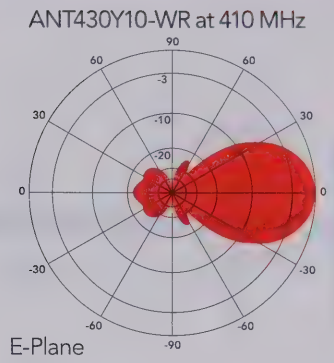
All specifications subject to change without notice

TWDS-7113 Rev. 10/13

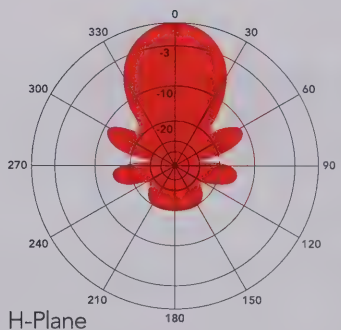
ANT430Y10-WR

YAGI ANTENNA 10 dBd





E-Plane
Gain: 10.1 dBd



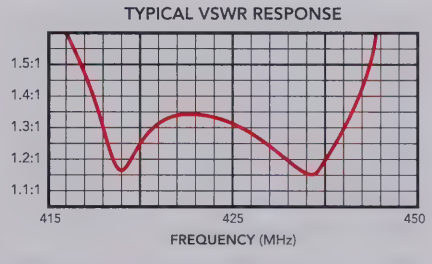
H-Plane
Gain: 10.1 dBd

The Telewave ANT430Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT430Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

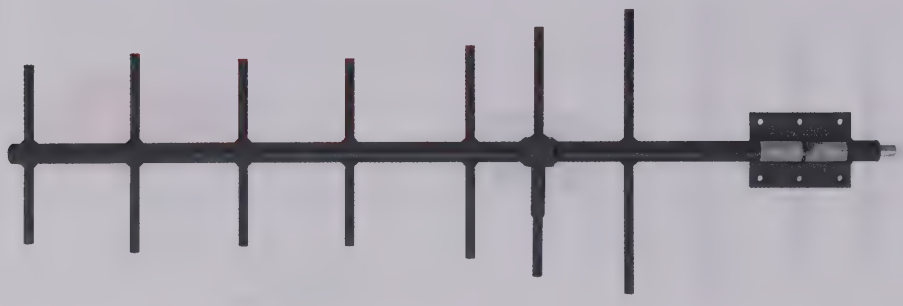
For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

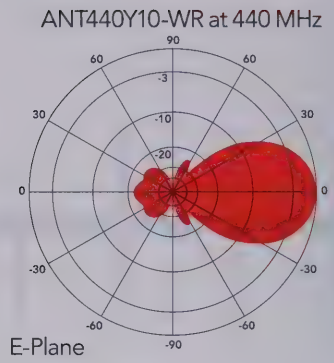


SPECIFICATIONS			
Frequency (continuous)	405-420 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	45 x 17 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

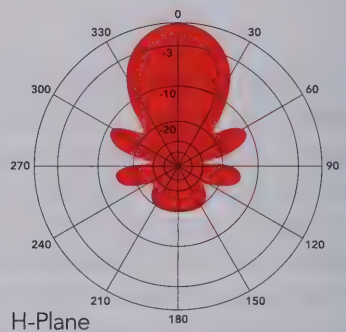
ANT440Y10-WR

YAGI ANTENNA 10 dBd





E-Plane
Gain: 10.0 dBd



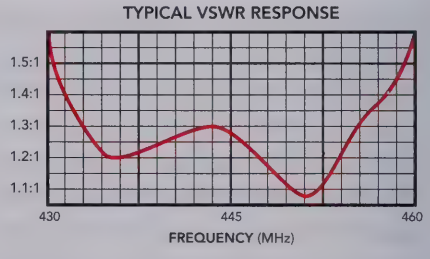
H-Plane
Gain: 10.0 dBd

The Telewave ANT440Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT440Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



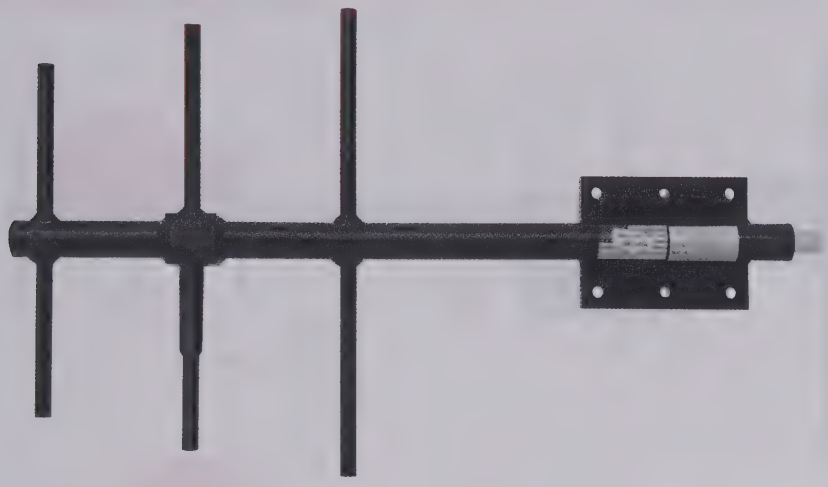
SPECIFICATIONS			
Frequency (continuous)	438-455 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	45 x 15 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

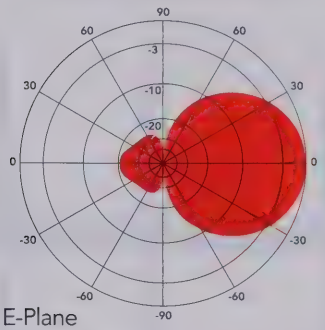
TWDS-7029 Rev. 10/13

ANT450Y5-WR

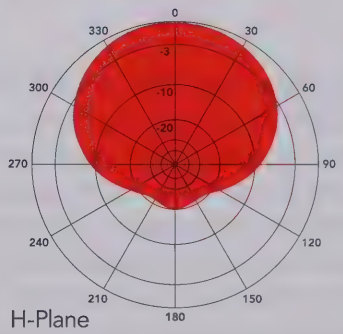
YAGI ANTENNA 5 dBd



ANT450Y5-WR at 440 MHz



E-Plane
Gain: 5.2 dBd



H-Plane
Gain: 5.2 dBd

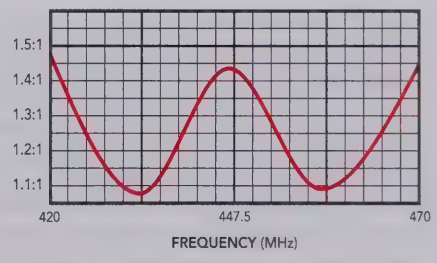
The Telewave ANT450Y5-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT450Y5-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE



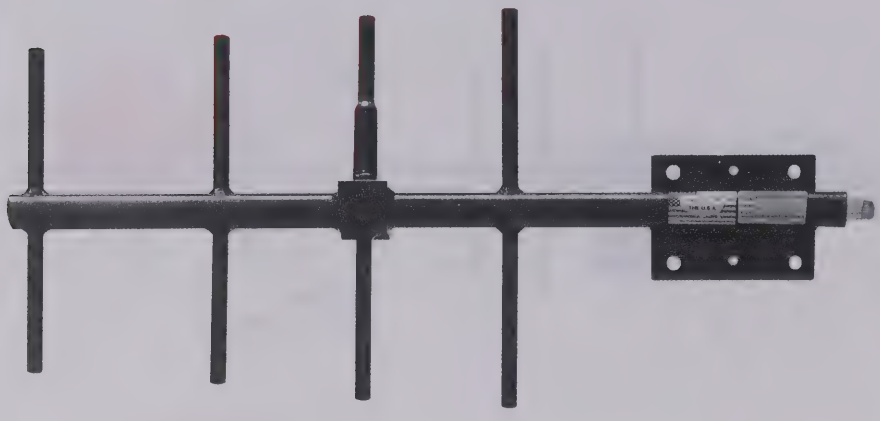
SPECIFICATIONS			
Frequency (continuous)	420-470 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	24 x 14 in.
Power rating (typ)	500 watts	**Antenna weight**	5 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	9 lb.
Front to back ratio (min)	18 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	64° / 116°	**Exposed area (flat plate equiv.)**	0.12 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	4.8 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

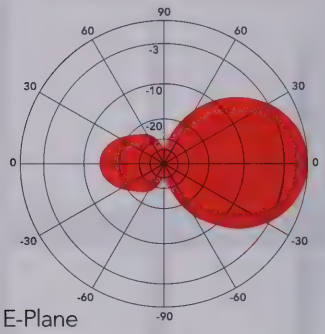
450 - 470 MHz

ANT450Y7-WR

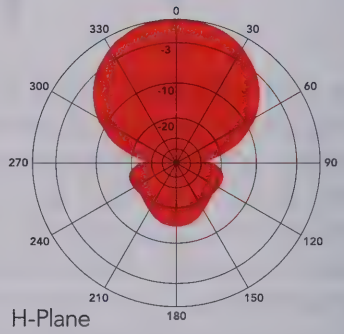
YAGI ANTENNA 7 dBd



ANT450Y7-WR at 460 MHz



E-Plane
Gain: 7.2 dBd



H-Plane
Gain: 7.2 dBd

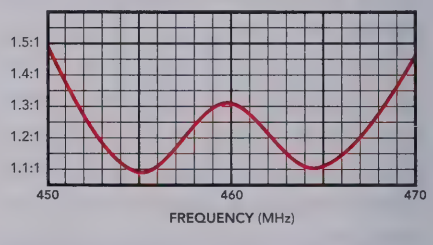
The Telewave ANT450Y7-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 7 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds provide exceptional strength and prevent intermodulation.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT450Y7-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE

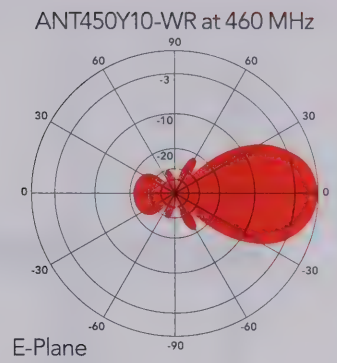


SPECIFICATIONS			
Frequency (continuous)	450-470 MHz	**Elements**	4
Gain (typ)	7 dBd	**Dimensions (L x H)**	29 x 13 in.
Power rating (typ)	500 watts	**Antenna weight**	5 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	9 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	54° / 80°	**Exposed area (flat plate equiv.)**	0.33 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	13.4 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

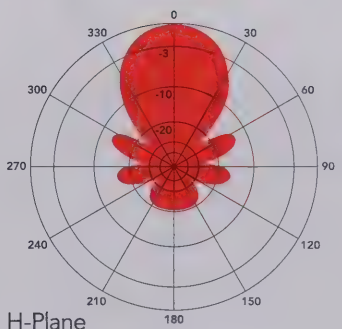
All specifications subject to change without notice

ANT450Y10-WR

YAGI ANTENNA 10 dBd



E-Plane
Gain: 10.2 dBd



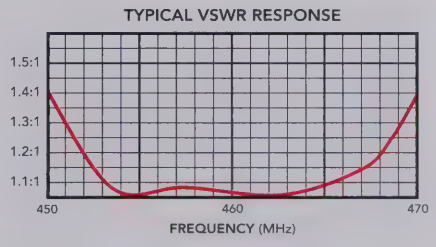
H-Plane
Gain: 10.2 dBd

The Telewave ANT450Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT450Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

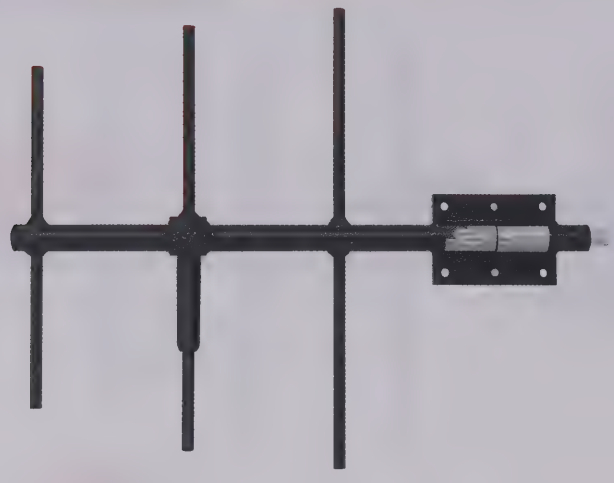
For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



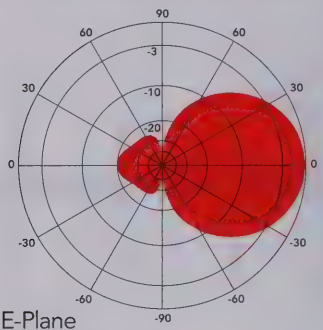
SPECIFICATIONS			
Frequency (continuous)	450-470 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	45 x 15 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

ANT475Y5-WR

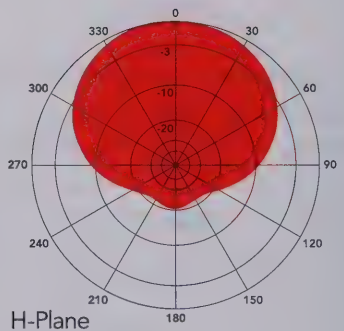
YAGI ANTENNA 5 dBd



ANT475Y5-WR at 480 MHz



E-Plane
Gain: 5.0 dBd



H-Plane
Gain: 5.0 dBd

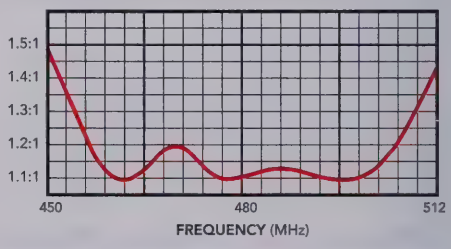
The Telewave ANT475Y5-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT475Y5-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE

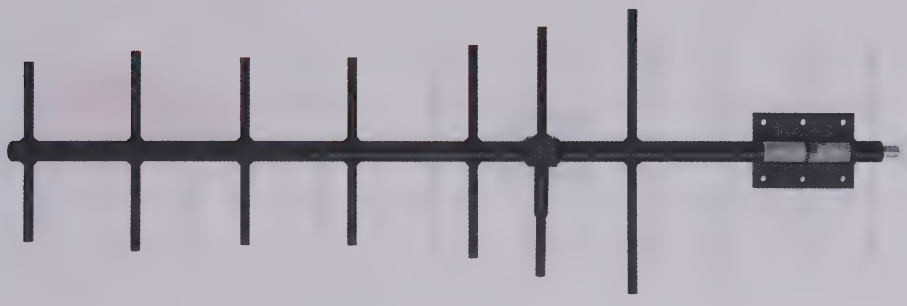


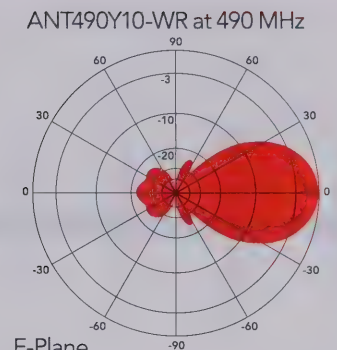
SPECIFICATIONS			
Frequency (continuous)	450-512 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	17 x 13 in.
Power rating (typ)	500 watts	**Antenna weight**	2 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	4 lb.
Front to back ratio (min)	18 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	64° / 116°	**Exposed area (flat plate equiv.)**	0.17 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	6.9 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

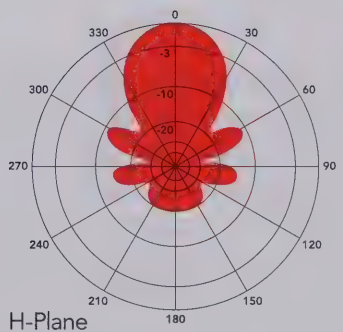
ANT490Y10-WR

YAGI ANTENNA 10 dBd





E-Plane
Gain: 10.1 dBd



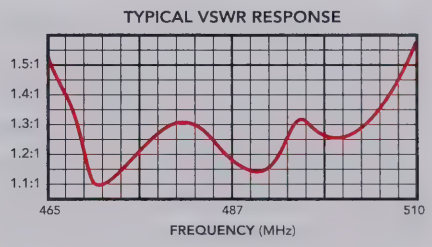
H-Plane
Gain: 10.1 dBd

The Telewave ANT490Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT490Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



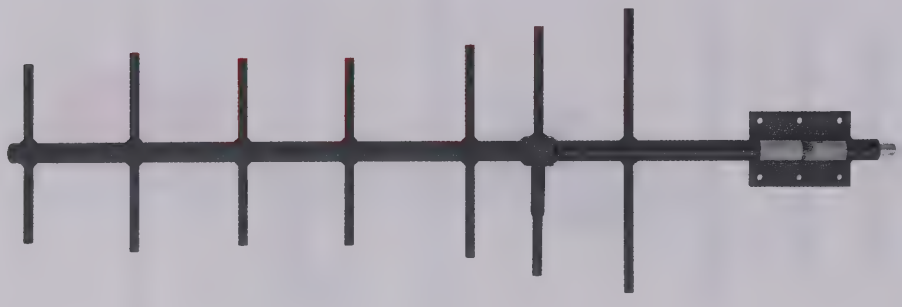
SPECIFICATIONS			
Frequency (continuous)	470-500 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	42.5 x 13 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

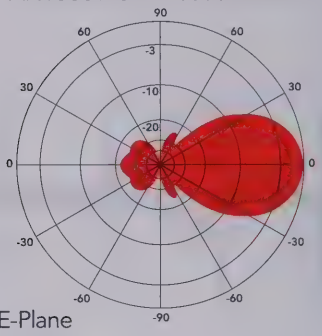
485 - 512 MHz

ANT500Y10-WR

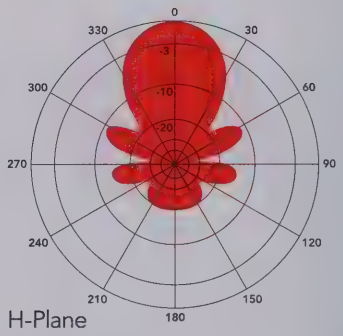
YAGI ANTENNA 10 dBd



ANT500Y10-WR at 500 MHz



E-Plane
Gain: 10.1 dBd



H-Plane
Gain: 10.1 dBd

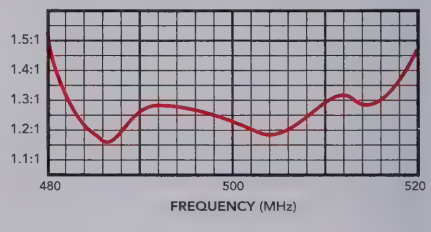
The Telewave ANT500Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT500Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE



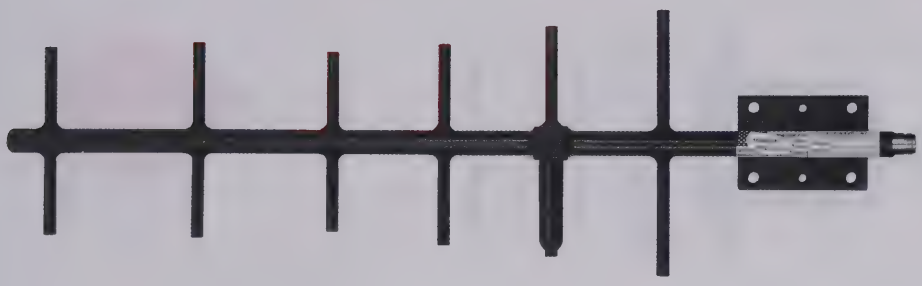
SPECIFICATIONS			
Frequency (continuous)	485-512 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	45 x 14.5 in.
Power rating (typ)	500 watts	**Antenna weight**	8 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	150 / 125 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.42 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	17.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

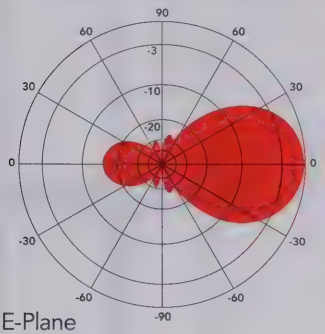
TWDS-7112 Rev. 10/13

ANT740Y8-WR

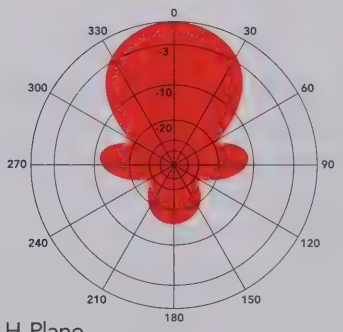
YAGI ANTENNA 8 dBd



ANT740Y8-WR at 740 MHz



E-Plane
Gain: 8 dBd



H-Plane
Gain: 8 dBd

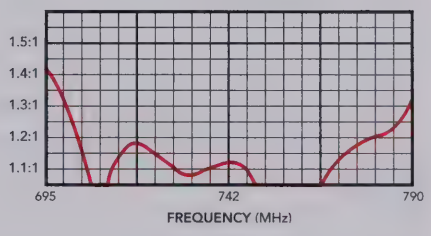
The Telewave ANT740Y8-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 8 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT740Y8-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM940H adapter can be used. The clamp set fits any vertical mast or tower support from 1.0"-2.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

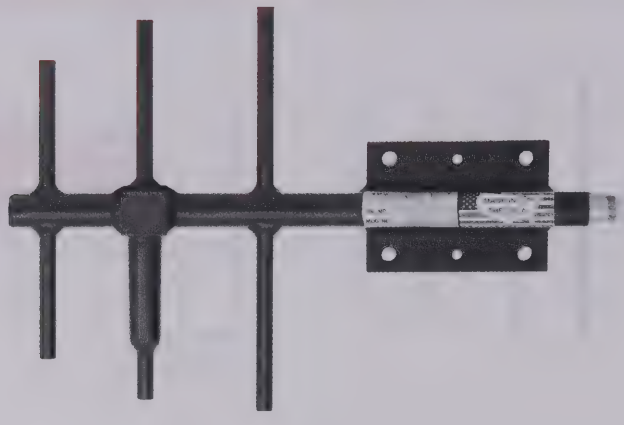
TYPICAL VSWR RESPONSE



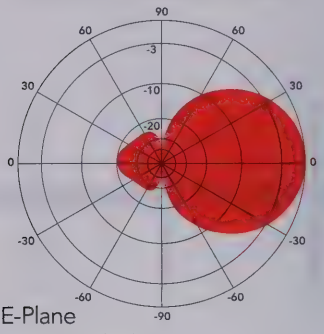
SPECIFICATIONS			
Frequency (continuous)	698-787 MHz	**Elements**	6
Gain (typ)	8 dBd	**Dimensions (L x H)**	27.5 x 8 in.
Power rating (typ)	500 watts	**Antenna weight**	3 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	6 lb.
Front to back ratio (min)	18 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	54° / 64°	**Exposed area (flat plate equiv.)**	0.3 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	8.5 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

ANT750Y5-WR

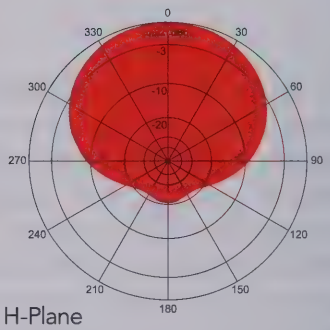
YAGI ANTENNA 5 dBd



ANT750Y5-WR at 770 MHz



E-Plane
Gain: 5.2 dBd



H-Plane
Gain: 5.2 dBd

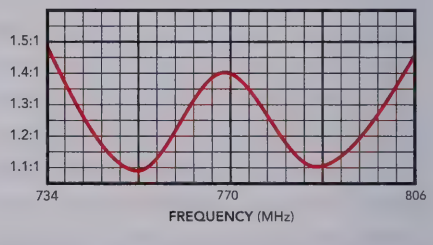
The Telewave ANT750Y5-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 5 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT750Y5-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM940H adapter can be used. The clamp set fits any vertical mast or tower support from 1.0"-2.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE

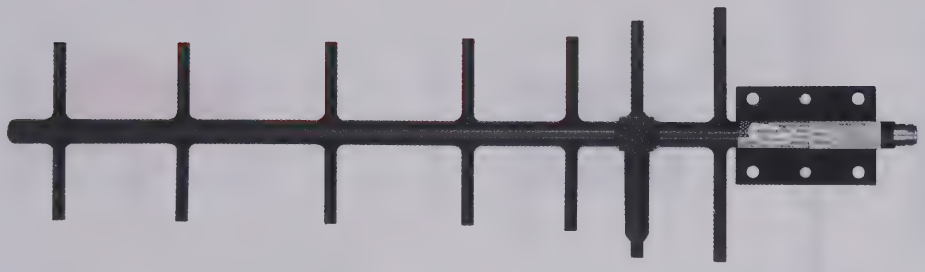


SPECIFICATIONS			
Frequency (continuous)	734-806 MHz	**Elements**	3
Gain (typ)	5 dBd	**Dimensions (L x H)**	13 x 8 in.
Power rating (typ)	500 watts	**Antenna weight**	2 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	5 lb.
Front to back ratio (min)	18 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	64° / 116°	**Exposed area (flat plate equiv.)**	0.11 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	4.5 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

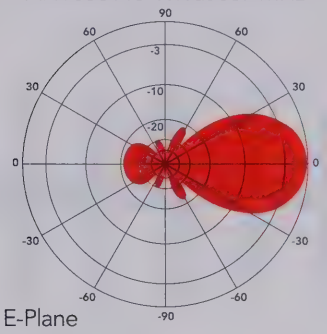
All specifications subject to change without notice

ANT830Y10-WR

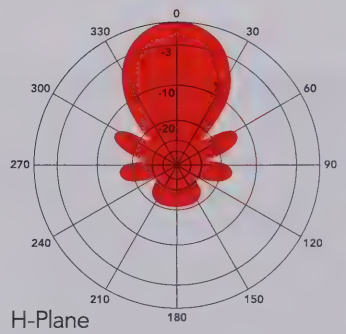
YAGI ANTENNA 10 dBd



ANT830Y10-WR at 837 MHz



E-Plane
Gain: 10.2 dBd



H-Plane
Gain: 10.2 dBd

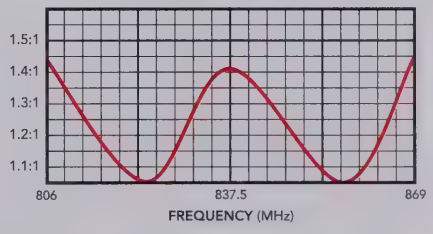
The Telewave ANT830Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT830Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM940H adapter can be used. The clamp set fits any vertical mast or tower support from 1.0"-2.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.

TYPICAL VSWR RESPONSE



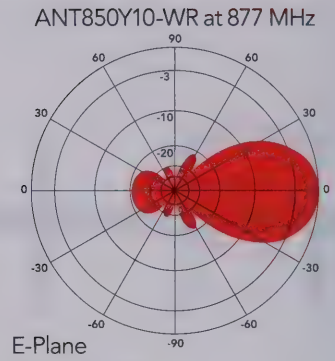
SPECIFICATIONS			
Frequency (continuous)	800-870 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	27 x 7.5 in.
Power rating (typ)	500 watts	**Antenna weight**	3 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	6 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	49° / 47°	**Exposed area (flat plate equiv.)**	0.25 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	7.25 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.®

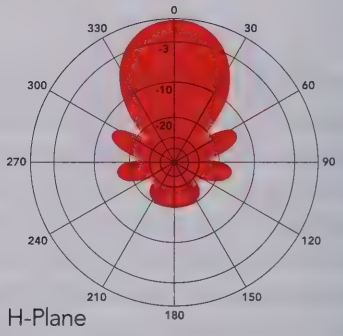
824 - 896 MHz

ANT850Y10-WR

YAGI ANTENNA 10 dBd



E-Plane
Gain: 10.2 dBd



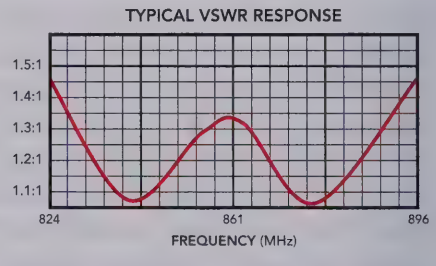
H-Plane
Gain: 10.2 dBd

The Telewave ANT850Y10-WR is a high performance directional antenna, designed especially for point to point as well as point/multipoint applications. This antenna produces 10 dBd forward gain with an excellent front-to-back ratio. Solid aluminum elements with 360° welds prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

The ANT850Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM940H adapter can be used. The clamp set fits any vertical mast or tower support from 1.0"-2.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



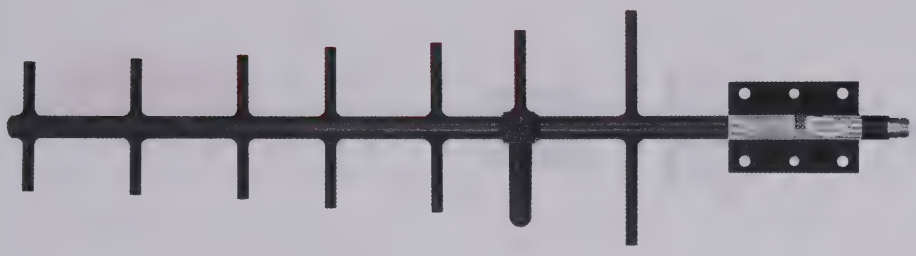
SPECIFICATIONS			
Frequency (continuous)	824-896 MHz	**Elements**	7
Gain (typ)	10 dBd	**Dimensions (L x H)**	23 x 11 in.
Power rating (typ)	500 watts	**Antenna weight**	3 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	7 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	46° / 50°	**Exposed area (flat plate equiv.)**	0.22 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	8.7 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

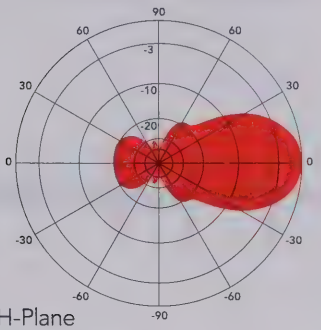
TWDS-7061 Rev. 10/13

ANT930Y10-WR

YAGI ANTENNA 10.5 dBd / 12.6 dBi



ANT930Y10-WR at 930 MHz



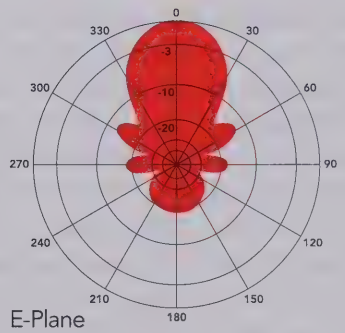
H-Plane
Gain: 10.5 dBd

The Telewave ANT930Y10-WR Yagi is a high performance directional antenna, designed especially for point to point as well as point/multipoint control applications. Seven elements provide a minimum of 10.5 dBd (12.6 dBi) forward gain, excellent front-to-back performance, and coverage of the entire 900 MHz commercial band. The boom and elements are solid 360° welded aluminum to prevent intermodulation and provide exceptional strength.

Each antenna is completely protected with our high-tech Txylan™ coating, which provides icing resistance and protection from corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is protected within the boom, and the radiating element is completely sealed against ice and other hazards with a tough, RF-transparent radome.

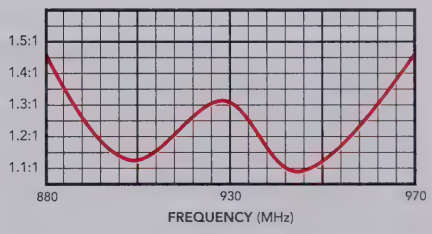
The ANT930Y10-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM940H adapter can be used. The clamp set fits any vertical mast or tower support from 1.0"-2.5" O.D.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



E-Plane
Gain: 10.5 dBd

TYPICAL VSWR RESPONSE



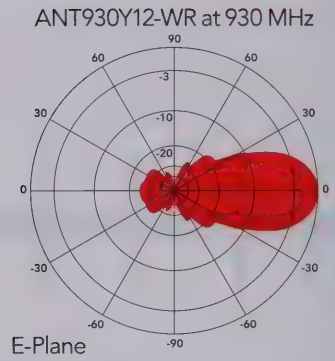
SPECIFICATIONS			
Frequency (continuous)	885-975 MHz	**Elements**	7
Gain (typ)	10.5 dBd	**Dimensions (L x H)**	28.5 x 7.5 in.
Power rating (typ)	500 watts	**Antenna weight**	3 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	8 lb.
Front to back ratio (min)	25 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	40° / 50°	**Exposed area (flat plate equiv.)**	0.25 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	10.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

880 - 960 MHz

ANT930Y12-WR

YAGI ANTENNA 12.2 dBd / 14.3 dBi



E-Plane
Gain: 12.2 dBd

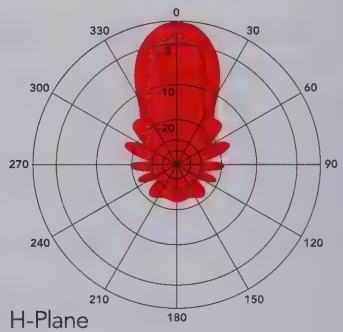
The Telewave ANT930Y12-WR Yagi antenna is a high performance directional antenna, with reduced sidelobes and very high front-to-back ratio. Twelve elements provide a minimum of 12.2 dBd (14.3 dBi) forward gain, and coverage of the entire 900 MHz commercial band. The boom and elements are solid 360° welded aluminum to prevent intermodulation and provide exceptional strength.

All antenna components are completely protected with our high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain, and wind-blown sand in desert environments. This coating also greatly reduces ice buildup.

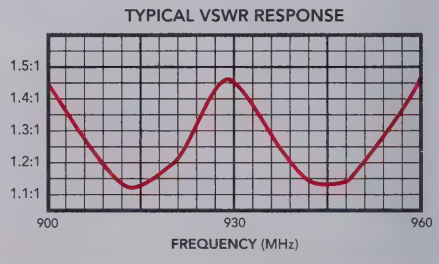
The active element and feed line are sealed within the antenna.

The ANT930Y12-WR includes a welded vertical plate and mast clamp set. A horizontal welded plate is optional, or the ANTM400H adapter can be used. The clamp set fits any vertical mast or tower support from 1.5"-3.5" O.D. For hardline cable a 90°-angle feed option is available.

For installations on angled supports, the Universal mount option deletes the welded clamp, providing 3 separate planes of rotation and almost any required orientation. The "U" mount attaches to virtually all supports up to 3.5" in diameter, and can be adapted to flat surfaces and utility poles.



H-Plane
Gain: 12.2 dBd



SPECIFICATIONS			
Frequency (continuous)	880-960 MHz	**Elements**	12
Gain (typ)	12.2 dBd	**Dimensions (L x H)**	44 x 6 in.
Power rating (typ)	500 watts	**Antenna weight**	6 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	11 lb.
Front to back ratio (min)	26 dB	**Wind rating / with 0.5" ice**	175 / 150 MPH
Beamwidth V / H	34° / 36°	**Exposed area (flat plate equiv.)**	0.58 ft.²
Pattern / Polarization	Directional / Vertical	**Lateral thrust at 100 MPH**	23.2 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

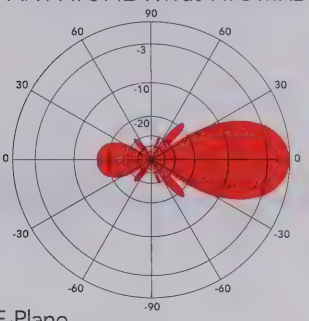
All specifications subject to change without notice

TWDS-7004 Rev. 10/13

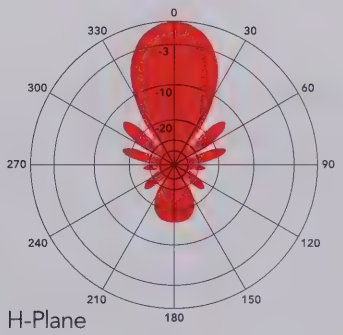
ANT1470Y12-WR

YAGI ANTENNA 12.2 dBd / 14.3 dBi

ANT1470Y12-WR at 1470 MHz



E-Plane
Gain: 12.2 dBd



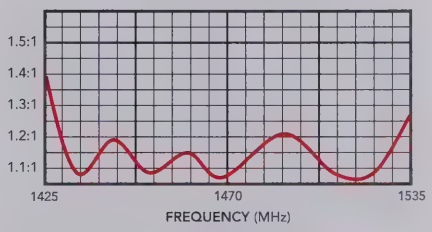
H-Plane
Gain: 12.2 dBd

The Telewave ANT1470Y12-WR is a rugged, wideband, high gain Yagi antenna, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses twelve solid brass elements, and produces 12.2 dBd forward gain with excellent front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT1470Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



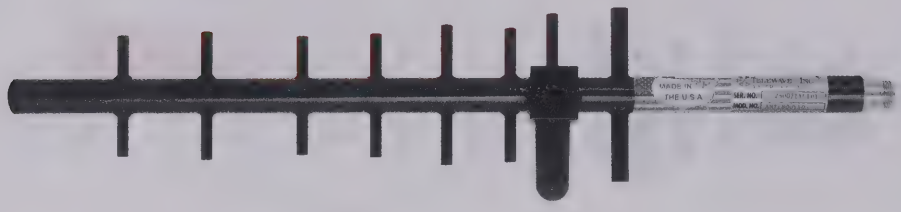
SPECIFICATIONS			
Frequency (continuous)	1425-1535 MHz	**Elements**	12
Gain (typ)	12.2 dBd	**Dimensions (L x H)**	26 x 5 in.
Power rating (typ)	500 watts	**Antenna weight**	2 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	7 lb.
Front to back ratio (min)	17 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	34° / 35°	**Exposed area (flat plate equiv.)**	0.18 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	7.4 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

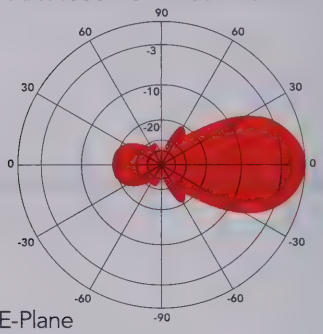
1710 - 1880 MHz

ANT1800Y10-WR

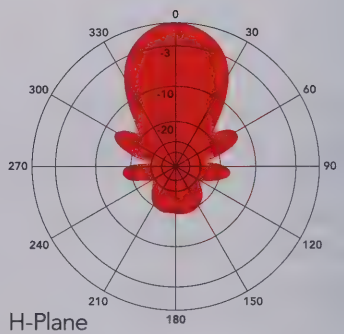
YAGI ANTENNA 10.2 dBd / 12.3 dBi



ANT1800Y10-WR at 1795 MHz



E-Plane
Gain: 10.2 dBd



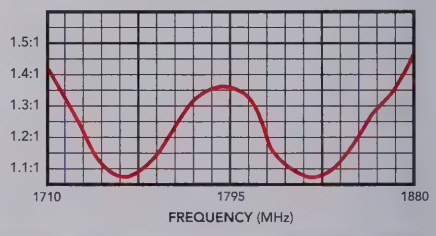
H-Plane
Gain: 10.2 dBd

The Telewave ANT1800Y10-WR is a rugged, wideband, high gain Yagi antenna for the DCS-1800 band, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses eight solid brass elements, and produces 10 dBd forward gain with excellent front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT1800Y10-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



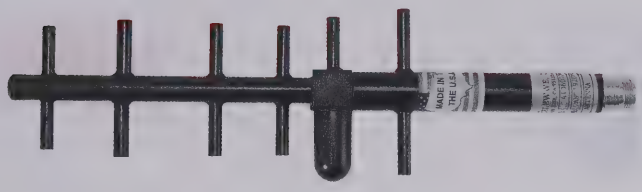
SPECIFICATIONS			
Frequency (continuous)	1710-1880 MHz	**Elements**	8
Gain (typ)	10.2 dBd	**Dimensions (L x H)**	19 x 3 in.
Power rating (typ)	500 watts	**Antenna weight**	3 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	5 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	165 / 150 MPH
Beamwidth V / H	40° / 50°	**Exposed area (flat plate equiv.)**	0.14 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	5.6 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

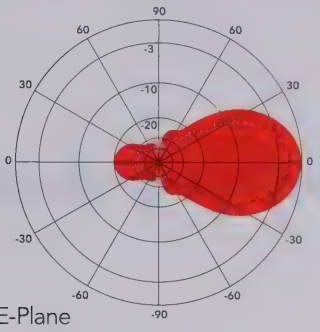
TWDS-7014 Rev. 10/13

ANT1920Y9-WR

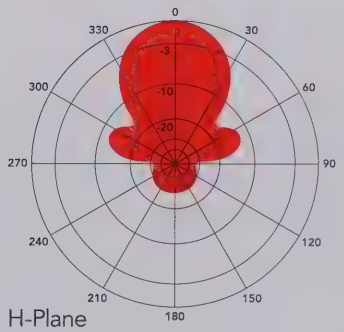
YAGI ANTENNA 9.3 dBd / 11.4 dBi



ANT1920Y9-WR at 1920 MHz



E-Plane
Gain: 9.3 dBd



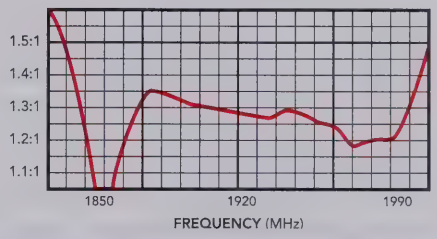
H-Plane
Gain: 9.3 dBd

The Telewave ANT1920Y9-WR is a rugged, wideband, high gain Yagi antenna for the broadband PCS bands, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses six solid brass elements, and produces 9.3 dBd forward gain with excellent front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT1920Y9-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



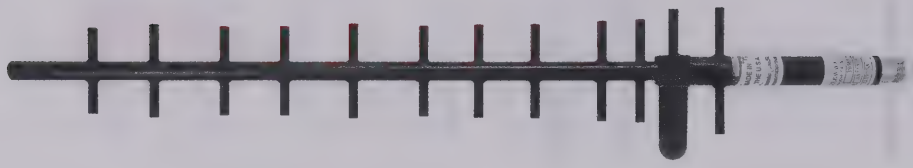
SPECIFICATIONS			
Frequency (continuous)	1850-1990 MHz	**Elements**	6
Gain (typ)	9.3 dBd	**Dimensions (L x H)**	11.75 x 3.5 in.
Power rating (typ)	500 watts	**Antenna weight**	1 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	4 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	46° / 56°	**Exposed area (flat plate equiv.)**	0.14 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	5.6 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.®

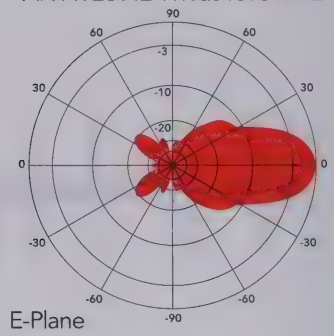
1850 - 1990 MHz

ANT1920Y12-WR

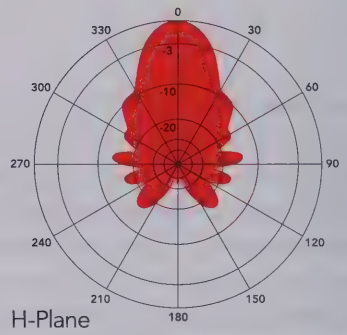
YAGI ANTENNA 12.2 dBd / 14.3 dBi



ANT1920Y12-WR at 1895 MHz



E-Plane
Gain: 12.0 dBd



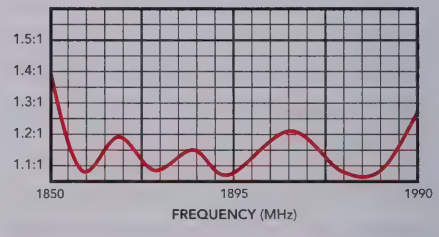
H-Plane
Gain: 12.0 dBd

The Telewave ANT1920Y12-WR is a rugged, wideband, high gain Yagi antenna for the broadband PCS bands, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses twelve solid brass elements, and produces 12.2 dBd forward gain with excellent front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT1920Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE

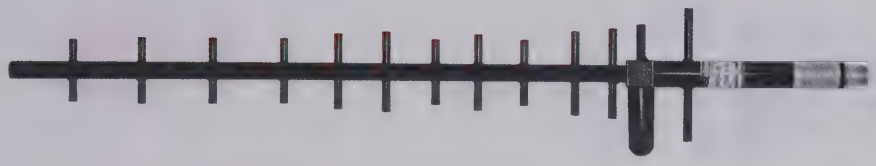


SPECIFICATIONS			
Frequency (continuous)	1850-1990 MHz	**Elements**	12
Gain (typ)	12.2 dBd	**Dimensions (L x H)**	23 x 3.25 in.
Power rating (typ)	500 watts	**Antenna weight**	2 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	6 lb.
Front to back ratio (min)	22 dB	**Wind rating / with 0.5" ice**	200 / 165 MPH
Beamwidth V / H	30° / 35°	**Exposed area (flat plate equiv.)**	0.2 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	8.0 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

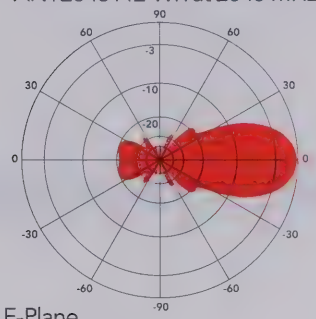
All specifications subject to change without notice

ANT2045Y12-WR

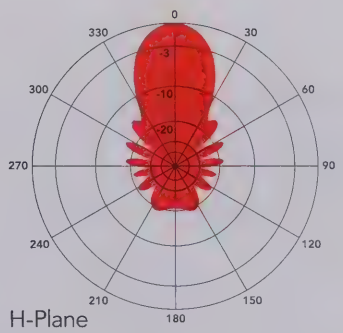
YAGI ANTENNA 12.2 dBd / 14.3 dBi



ANT2045Y12-WR at 2045 MHz



E-Plane
Gain: 12.2 dBd



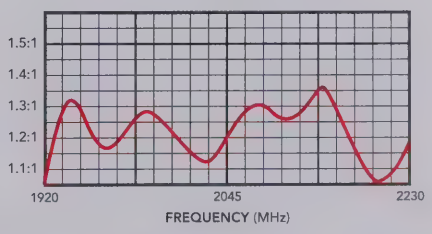
H-Plane
Gain: 12.2 dBd

The Telewave ANT2045Y12-WR is a rugged, wideband, high gain Yagi antenna for the 3G UMTS/ PCS bands, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses thirteen solid brass elements, and produces 12.2 dBd forward gain with exceptional front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT2045Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



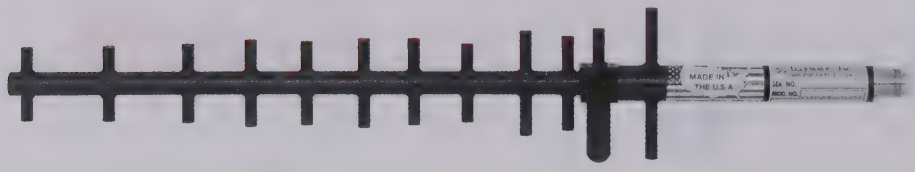
SPECIFICATIONS			
Frequency (continuous)	1920-2170 MHz	**Elements**	13
Gain (typ)	12.2 dBd	**Dimensions (L x H)**	24 x 3.75 in.
Power rating (typ)	500 watts	**Antenna weight**	1.6 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	6 lb.
Front to back ratio (min)	30 dB	**Wind rating / with 0.5" ice**	175 / 150 MPH
Beamwidth V / H	30° / 35°	**Exposed area (flat plate equiv.)**	0.12 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	4.6 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

TELEWAVE, INC.

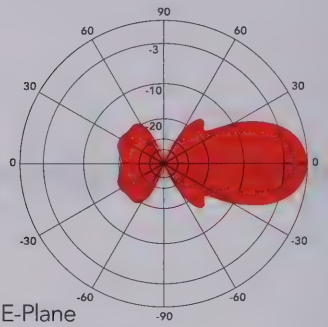
2300 - 2500 MHz

ANT2350Y12-WR

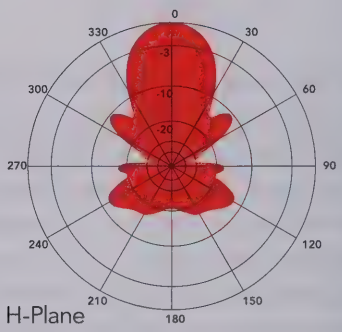
YAGI ANTENNA 12 dBd / 14.1 dBi



ANT2350Y12-WR at 2400 MHz



E-Plane
Gain: 12.0 dBd



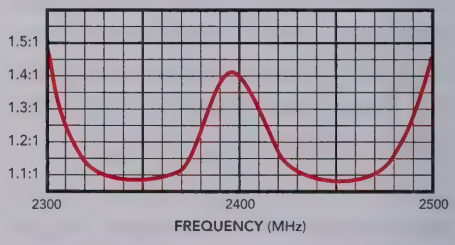
H-Plane
Gain: 12.0 dBd

The Telewave ANT2350Y12-WR is a rugged, wideband, high gain Yagi antenna for the WiFi and amateur 13 cm bands, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses ten solid brass elements, and produces 12 dBd forward gain with exceptional front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT2350Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



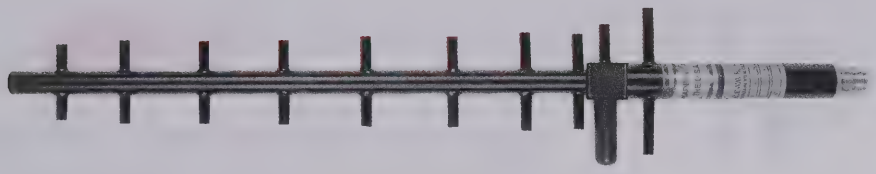
SPECIFICATIONS			
Frequency (continuous)	2300-2500 MHz	**Elements**	12
Gain (typ)	12 dBd	**Dimensions (L x H)**	18.5 x 3.25 in.
Power rating (typ)	500 watts	**Antenna weight**	1.5 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	4 lb.
Front to back ratio (min)	19 dB	**Wind rating / with 0.5" ice**	175 / 150 MPH
Beamwidth V / H	36° / 38°	**Exposed area (flat plate equiv.)**	0.1 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	4.1 lb.
Termination	N Female or 7-16 DIN (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

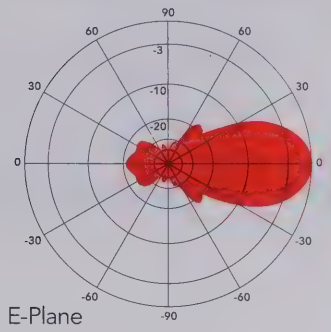
TWDS-7123 Rev. 10/13

ANT2400Y12-WR

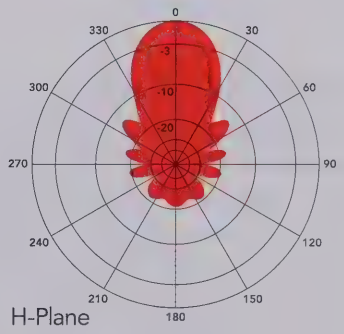
YAGI ANTENNA 12 dBd / 14.1 dBi



ANT2400Y12-WR at 2450 MHz



E-Plane
Gain: 12.0 dBd



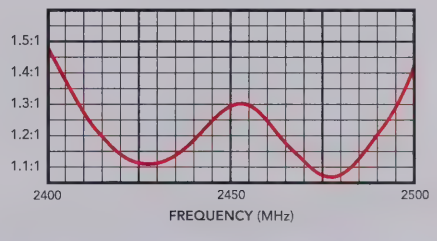
H-Plane
Gain: 12.0 dBd

The Telewave ANT2400Y12-WR is a rugged, wideband, high gain Yagi antenna for the WiFi and amateur 13 cm bands, designed for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses ten solid brass elements, and produces 12 dBd forward gain with exceptional front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT2400Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



SPECIFICATIONS			
Frequency (continuous)	2400-2500 MHz	**Elements**	10
Gain (typ)	12 dBd	**Dimensions (L x H)**	17.75 x 3.5 in.
Power rating (typ)	500 watts	**Antenna weight**	1.25 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	6 lb.
Front to back ratio (min)	30 dB	**Wind rating / with 0.5" ice**	165 / 150 MPH
Beamwidth V / H	34° / 35°	**Exposed area (flat plate equiv.)**	0.09 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	3.6 lb.
Termination	N Female or 7-16 DIN-F (opt)	(40 psf - flat plate equiv.)	

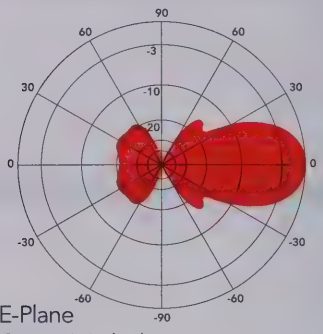
TELEWAVE, INC.

2500 - 2700 MHz

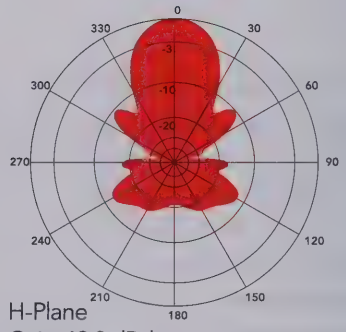
ANT2600Y12-WR

YAGI ANTENNA 12 dBd / 14.1 dBi

ANT2600Y12-WR at 2600 MHz



E-Plane
Gain: 12.0 dBd



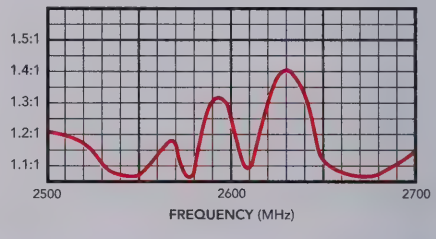
H-Plane
Gain: 12.0 dBd

The Telewave ANT2600Y12-WR is a rugged, wideband, high gain Yagi antenna for the WiMAX/LTE bands, designed for for handheld use with many types of portable wireless analyzers. This antenna can also be installed for fixed use in any environment. The antenna uses 12 solid brass elements, and produces 12 dBd forward gain with excellent front-to-back performance. Construction and design are optimized to prevent RF intermodulation, and ensure precise pattern control.

Each antenna is completely protected with Telewave's high-tech Txylan™ coating, which seals the antenna against corrosive gases, UV radiation, salt spray, acid rain and wind-blown sand. The feed line is sealed within the antenna boom, and an RF-transparent radome protects the driven element from corrosion or icing.

The ANT2600Y12-WR includes a small U-clamp and plates that allow the antenna to be mounted for vertical or horizontal polarization. The clamp set can be attached to any vertical mast or tower support between 0.5"-1.125" O.D. The Universal mount option allows mounting to angled supports up to 3.5" O.D., and continuous tilt adjustment.

TYPICAL VSWR RESPONSE



SPECIFICATIONS			
Frequency (continuous)	2500-2700 MHz	**Elements**	12
Gain (typ)	12 dBd	**Dimensions (L x H)**	17.25 x 3 in.
Power rating (typ)	500 watts	**Antenna weight**	1.0 lb.
Impedance / VSWR	50 ohms / 1.5:1 (max)	**Shipping weight**	3 lb.
Front to back ratio (min)	20 dB	**Wind rating / with 0.5" ice**	175 / 150 MPH
Beamwidth V / H	36° / 40°	**Exposed area (flat plate equiv.)**	0.08 ft.²
Pattern / Polarization	Directional / Variable	**Lateral thrust at 100 MPH**	3.2 lb.
Termination	N Female or 7-16 DIN-F (opt)	(40 psf - flat plate equiv.)	

All specifications subject to change without notice

TWDS-7062 Rev. 10/13

INSTALLATION GUIDE FOR YAGI ANTENNAS

WARNING:

For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

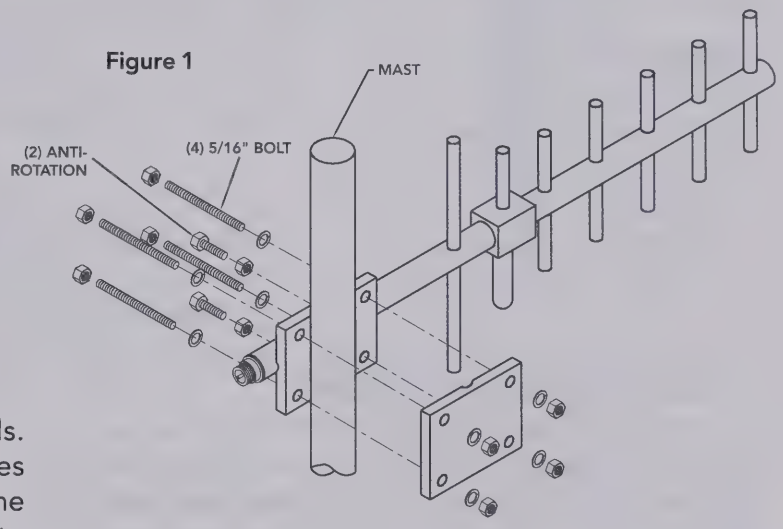
BEFORE ASSEMBLING AND MOUNTING:

Carefully read all instructions and study the diagrams.
Check to make sure you have all parts.

PARTS LIST (Fig. 1)

(1) Antenna assy.
(1) Mounting plate
(4) 5/16-18 x 4.0" threaded rod
(2) 5/16-18 x 1.0" bolt
(10) 5/16" Hex nuts
(8) 5/16" Lock washers
(1) Anti-seize compound

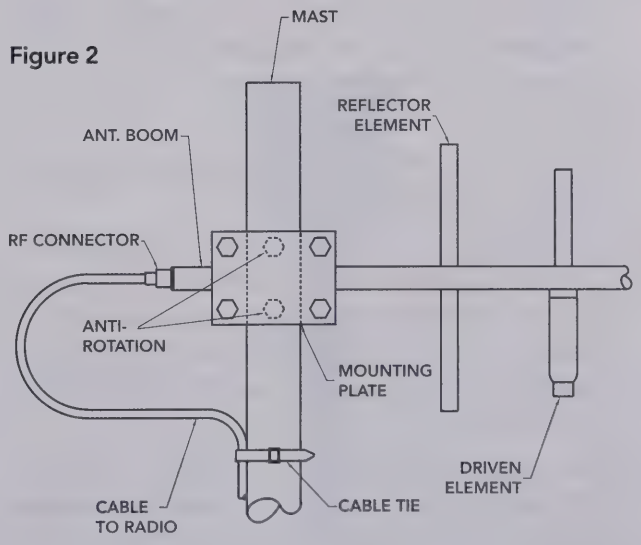
Figure 1



MOUNTING INSTRUCTIONS

1. Apply anti-seize compund to all rod ends. Attach mounting and antenna boom plates to the mast with (4) 5/16" rods per Fig. 1. The mounting and boom plates are grooved to provide self alignment for vertical orientation. The driven element radome should be pointing down.
2. Tighten the hex nuts until all lock washers are flat, then add 1/2 turn to each. Tighten the anti-rotation bolts and jam nuts to resist turning forces on the antenna.
3. The antenna input connector is a Type N or 7-16 DIN Female. Connect the RF feed cable to the antenna output connector. Secure all cables with cable ties. Fig. 2 illustrates a typical method for connecting the RF cable, with a feed cable service loop.
4. Be sure to properly seal the input connector with waterproof tape or other sealing material. See Telewave TWDS-0502 for a recommended method of connector sealing.

Figure 2



Note: Driven element with radome should be pointing down for vertical polarization.

TELEWAVE, INC.

1.0 - 2.7 GHz

INSTALLATION GUIDE FOR YAGI ANTENNAS

WARNING:

For your safety, do not install any antenna near power lines, and carefully follow all installation instructions. If the antenna falls toward or contacts any overhead wires, immediately let go and stay away. Call the utility company for assistance. Always use safety devices for tower climbing. Ensure that the tower structure is well grounded for lightning protection.

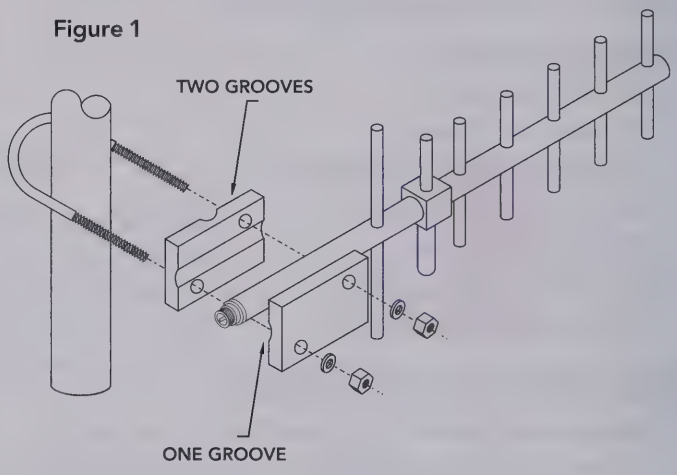
BEFORE ASSEMBLING AND MOUNTING:

Carefully read all instructions and study the diagrams. Check to make sure you have all parts.

PARTS LIST (Figure 1)

(1) Antenna assy.
(2) Mounting plates
(1) 5/16-18 U-bolt
(2) 5/16" Hex nuts
(2) 5/16"Lock washers
(1) Anti-seize compound

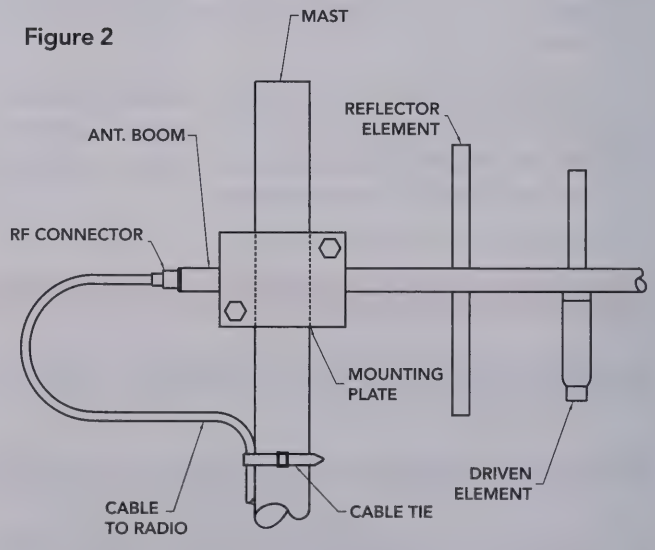
Figure 1



MOUNTING INSTRUCTIONS

1. Apply anti-seize compund to U-bolt ends. Loosely attach mounting plate with 2 grooves and antenna clamp plate to the mast with U-bolt per Fig. 1. Slide the antenna boom end into the groove in the mounting plates, and rotate the antenna elements according to the requirements of the application. The driven element radome should be pointing down for vertical operation.
2. Tighten the hex nuts until the lock washers are flat, then add 1/2 turn.
3. The antenna input connector is a Type N or 7-16 DIN Female. Connect the RF feed cable to the antenna input connector. Secure all cables with cable ties. Fig. 2 illustrates a typical method for connecting the RF cable, with a feed cable service loop.
4. Be sure to properly seal the input connector with waterproof tape or other sealing material. See Telewave TWDS-0502 for a recommended method of connector sealing.

Figure 2



Note: Driven element with radome should be pointing down for vertical polarization.

All specifications subject to change without notice

TWDS-7082 Rev. 10/13

WIDEBAND ANTENNAS

Telewave Wideband Directional antennas offer a simple, rugged package for RF testing, troubleshooting and coverage analysis.

Telewave Wideband Discone antennas combine proven designs and ultra-rugged construction to withstand the most extreme conditions. Broad beamwidth enables communication over hundreds of miles from mountain-top sites to aircraft, with frequency coverage as wide as 30-3000 MHz in one antenna.

Telewave Discone antennas are fabricated from solid 6061-T6 aluminum, and completely welded for maximum strength and electrical performance. Each antenna is fully coated with our high-tech Txylan™ coating, which provides total protection from water, corrosive chemicals, salt spray, and windblown abrasives.

This smooth black coating also dramatically reduces surface friction, reducing and often preventing ice adhesion, while improving absorption of solar radiation. The ANT260KT is also available with Desert Tan coating, offering all the same benefits and clean visual integration in a desert environment.

The ANT280S is light enough to be used as a tactical antenna for field deployment, and can complement or replace multiple antennas on a mobile command vehicle. The 500 watt power rating allows use of high-power radios and tactical repeaters. The standard connector type is N Female, and a 7-16 DIN-F can be installed as an option for higher power applications.

ANT220K

WIDEBAND DISCONE ANTENNA

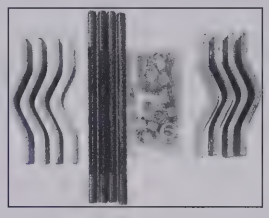
The Telewave ANT220K is an extremely rugged, wideband discone antenna for all frequencies between 30 MHz and 3 GHz. The wide vertical beamwidth of discone antennas allows clear communication for ground and ground-to-air applications.

Telewave discone antennas are designed to survive the most extreme conditions, where conventional antennas often fail. They are field-proven in US and overseas deployments and support many voice and data requirements in multiple bands.

Each discone is constructed from Mil. Spec. 6061-T6 solid aluminum, fully welded at all joints for maximum strength. All internal junctions are enclosed within a ruggedized radome to ensure survivability in the worst environments.

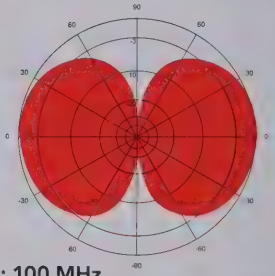
The radome and Txylan™ coating on all metal surfaces ensures complete protection from corrosive gases, ultraviolet radiation, salt spray, acid rain and sand storms in desert environments.

The ANT220K is designed to be clamped to a 1.5"-3.5" diameter galvanized steel support pipe. An ANTC482 dual clamp set is included.



ANTC482

SPECIFICATIONS *(PRELIMINARY)*	
Frequency (continuous)	30 MHz - 3000 MHz
Power rating (typ.)	500 watts
Gain (typ.)	0 dBd
Impedance	50 ohms
VSWR	2.5:1 or less
Pattern	Omnidirectional
Termination	N-Male or 7-16 DIN on RG-393 feed cable
Vertical beamwidth (nom.)	110 degrees (varies with frequency)
Wind rating / 0.5" ice	150 / 125 MPH
Maximum exposed area	2.25 ft.²
Lateral thrust at 100 MPH	90 lb
Bending moment at 100 MPH	180 ft. lb (top clamp, flat plate equiv.)
Dimensions	58" H x 38" W (at skirt base)
Weight (antenna + clamps)	61 lb
Shipping weight	110 lb



E-plane: 100 MHz

E-plane: 400 MHz

All specifications subject to change without notice

ANT260K, KT

WIDEBAND DISCONE ANTENNA

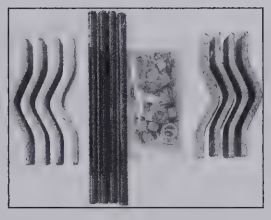
The Telewave ANT260K is an extremely rugged, wideband discone antenna for all frequencies between 75 MHz and 3 GHz. The wide vertical beamwidth of discone antennas allows clear communication for ground and ground-to-air applications.

Telewave discone antennas are designed to survive the most extreme conditions, where conventional antennas often fail. They are field-proven in US and overseas deployments and support many voice and data requirements in multiple bands.

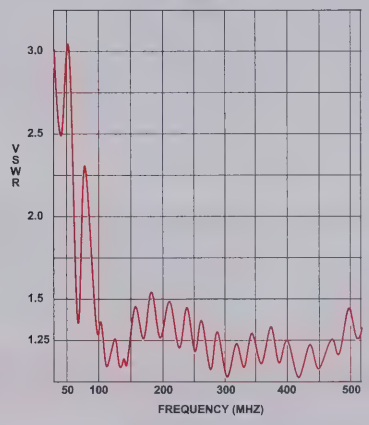
Each discone is constructed from Mil. Spec. 6061-T6 solid aluminum, fully welded at all joints for maximum strength. All internal junctions are enclosed within a ruggedized radome to ensure survivability in the worst environments.

The radome and Txylan™ coating on all metal surfaces ensures complete protection from corrosive gases, ultraviolet radiation, salt spray, acid rain and sand storms in desert environments.

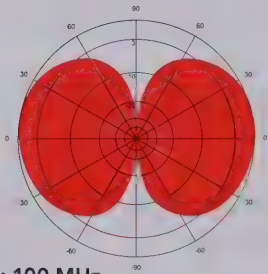
The ANT260K is designed to be clamped to a 1.5"-3.5" O.D. galvanized steel support pipe. An ANTC482 dual clamp set is included. The ANT260KT is coated in Desert Tan for deployment in desert environments.



ANTC482



SPECIFICATIONS	
Frequency (continuous)	75 MHz - 3 GHz (75-95 MHz at 2:1 VSWR)
Power rating (typ.)	500 watts
Gain (typ.)	0 dBd
Impedance	50 ohms
VSWR	1.5:1 or less in band
Pattern	Omnidirectional
Termination	N-Male or 7-16 DIN on RG-393 feed cable
Vertical beamwidth (nom.)	110 degrees
Wind rating / 0.5" ice	200 / 150 MPH
Maximum exposed area	1.67 ft.²
Lateral thrust at 100 MPH	66 lb
Bending moment at 100 MPH	133 ft. lb (top clamp, flat plate equiv.)
Dimensions	53" H x 26" W (at base)
Weight (antenna + clamps)	52 lb
Shipping weight	102 lb



E-plane: 100 MHz

E-plane: 400 MHz

ANT280S

WIDEBAND DISCONE ANTENNA

The Telewave ANT280S Discone is a rugged, lightweight, wideband antenna for all frequencies between 118 MHz and 3 GHz. This versatile antenna provides a highly flexible solution to interoperability requirements in multiple bands.

Each antenna is constructed from Mil. Spec. 6061-T6 solid aluminum, welded at all joints for maximum strength. A high-strength radome encloses the upper cone and RF connections to ensure survivability in adverse environments.

The radome and Txylan™ coating on all metal surfaces ensures complete protection from corrosive gases, ultraviolet radiation, salt spray, acid rain and sand storms in desert environments.

The antenna has a 1.5" diameter mast and a dual clamp kit is available for mounting to a 1.5"-3.5" O.D. support pipe.

The ANT280S is light enough to be used as a tactical antenna for field deployment, and can complement or replace multiple antennas on a mobile command vehicle. The 500 watt power rating allows use of high-power radios and tactical repeaters.

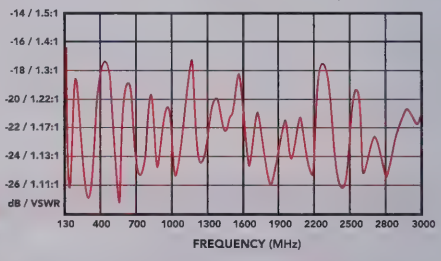
The full-surface coating and rugged construction means it can also be permanently mounted on a tower or command center roof for long-term fixed operation.

The ANT280S is ready to operate with a single or multiband radio using one antenna output. Several types of low-loss couplers are available for multi-radio operation.

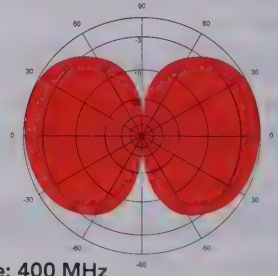
For optimum performance in the lowest frequency ranges, the antenna should be mounted at least 20 feet above the closest reflecting surface.

SPECIFICATIONS	
Frequency (continuous)	118 MHz - 3 GHz
Power rating (typ.)	500 watts
Gain (typ.)	0 dBd
Impedance	50 ohms
VSWR	1.5:1 or less (118 - 136 MHz at 1.8:1 VSWR)
Pattern	Omnidirectional
Termination	N-Male or 7-16 DIN (option) on feed cable
Vertical beamwidth (nom.)	110°
Wind rating / 0.5" ice	150 / 100 MPH
Maximum exposed area	0.89 ft.²
Lateral thrust at 100 MPH	36 lb
Bending moment at 100 MPH	49 ft. lb (top clamp, flat plate equiv.)
Dimensions	43" H x 28.5" W (at base)
Weight	11 lb

TYPICAL VSWR RESPONSE



E-plane: 136 MHz



E-plane: 400 MHz

All specifications subject to change without notice

TWDS-7108 Rev. 10/13

ANT400K, KS

WIDEBAND DISCONE ANTENNA

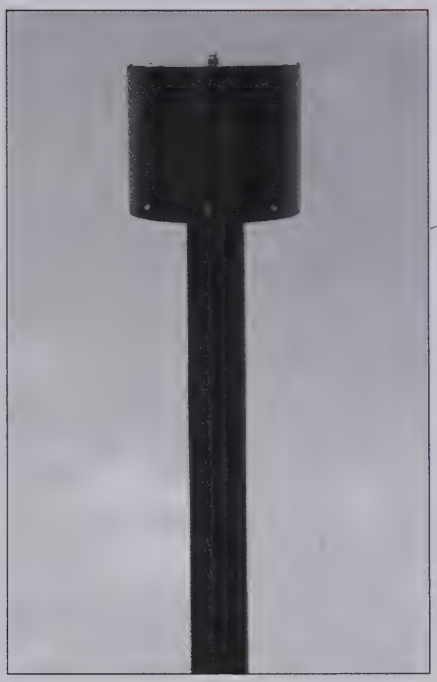
The Telewave ANT400K is an extremely rugged, wideband discone antenna for all frequencies between 400 MHz and 3 GHz. The wide vertical beamwidth of discone antennas allows clear communication for ground, sea, and ground-to-air applications.

Telewave discone antennas are designed to survive the most extreme conditions, where conventional antennas often fail. They are field-proven in military deployments and the offshore oil and gas industry, and support many voice and data requirements in multiple bands.

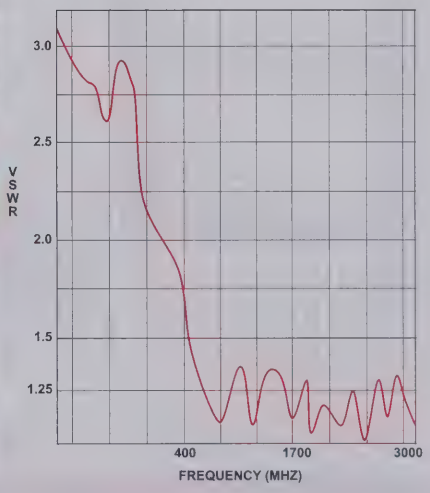
Each discone is constructed from Mil. Spec. 6061-T6 solid aluminum, fully welded at all joints for maximum strength. All internal junctions are enclosed within a ruggedized radome to ensure survivability in the worst environments.

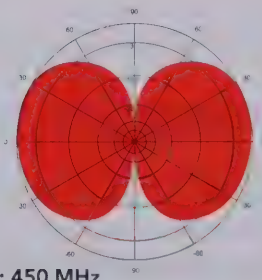
The radome and Txylan™ coating on all metal surfaces ensures complete protection from corrosive gases, ultraviolet radiation, salt spray, acid rain and sand storms in desert environments.

The ANT400K is designed to be clamped to a 1.5"-3.5" diameter galvanized steel support pipe. An ANTC482 dual clamp set is included. The ANT400KS is provided with a shortened support mast for compact installations.



ANT400KS IN OFFSHORE DEPLOYMENT



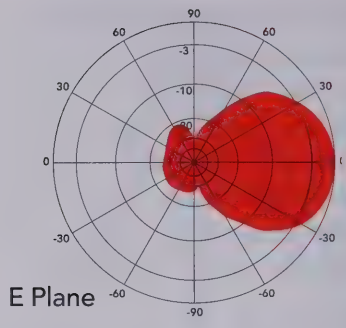


E-plane: 450 MHz

SPECIFICATIONS	
Frequency (continuous)	400 MHz - 3 GHz
Power rating (typ.)	500 watts
Gain (typ.)	0 dBd
Impedance	50 ohms
VSWR	1.5:1 or less in band
Pattern	Omnidirectional
Termination	N-Male or 7-16 DIN (option) on RG-393 feed cable
Vertical beamwidth (nom.)	110 degrees
Wind rating / 0.5" ice	200 / 150 MPH
Maximum exposed area	1.13 ft.^{2}
Lateral thrust at 100 MPH	46 lb
Bending moment at 100 MPH	74 ft. lb (top clamp, flat plate equiv.)
Dimensions	48" H x 8" W (at base)
Weight (antenna + clamps)	32 lb
Shipping weight	41 lb

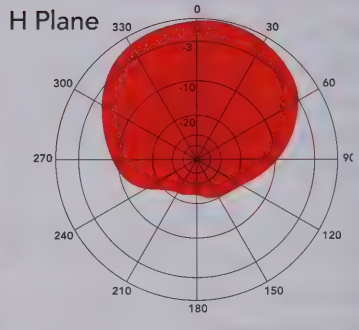
ANT500WR

WIDEBAND DIRECTIONAL ANTENNA



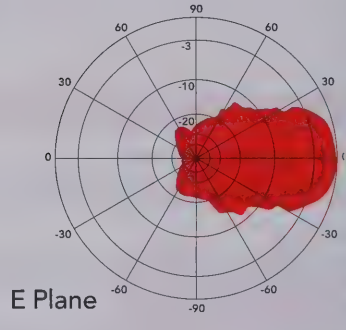
E Plane

550 MHz



H Plane

The Telewave ANT500WR is a lightweight, broadband directional antenna for interference location, in-building testing, and RF coverage measurement. The antenna is enclosed in a rugged, weatherproof housing, and includes a hand grip for accurate pointing and polarization. A flexible 5 ft. N-male jumper is also included.



E Plane

2000 MHz

H Plane

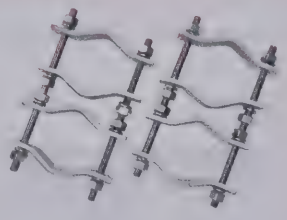
SPECIFICATIONS	
Frequency (continuous)	500 MHz - 3 GHz
Power rating (typ.)	500 watts
VSWR	2.5:1 or less
Impedance	50 ohms
Pattern	Directional
Termination	N-Female
Gain (frequency dependent)	4-7 dBi
Enclosure dimensions (H x W x D)	10.5" x 13.5" x 1.25"
Weight	2.5 lb.

All specifications subject to change without notice

ANTENNA MOUNTING HARDWARE

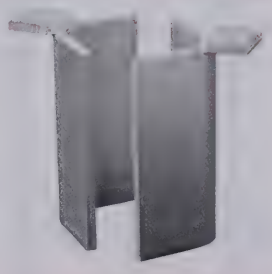
ANTC482

The ANTC482 Mounting Clamp Kit is fabricated from heavy-duty galvanized steel, with stainless steel fasteners. The middle clamps are separate for more flexible installation. Designed for mounting to square or round member towers from 1.5"-3.5" O.D. Two complete clamp sets are included in the kit.



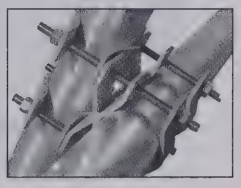
ANTS420

The ANTS420 Mast Shim Set allows mounting of Telewave folded dipoles to a 1.25 inch diameter mast or tower leg. One shim set is required for each dipole clamp.



ANTC483 / ANTC483SS

The ANTC483 Mounting Clamp Kit is fabricated from heavy-duty galvanized steel, with stainless steel fasteners. The 483SS model clamps are fabricated from stainless steel. The middle clamps are welded at the center. Designed for mounting to square or round member towers from 1.5"-3.5" O.D. Two complete clamp sets are included in the kit. This clamp kit can also be used in a 90° crossover configuration.

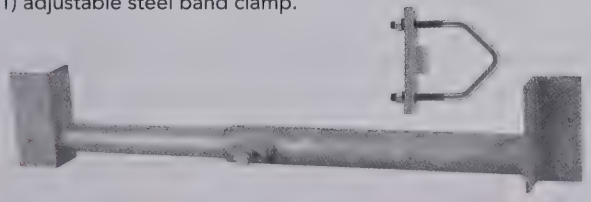


ANTM432

The ANTM432 is an insulated top support bracket for Telewave F6-8-10 collinear antennas. It is field-adjustable from 32"-43" from the tower. The boom is fabricated from UV-resistant PVC, and will not disrupt the VSWR or pattern of the antenna. (1) ANTC484 clamp and (2) steel band clamps are included with the kit.

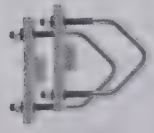
ANTM431

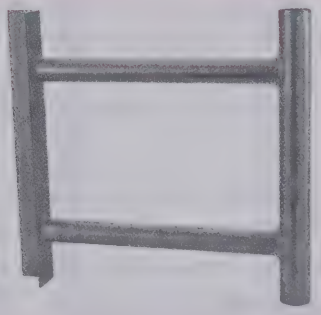
The ANTM431 is a top support bracket, designed to provide proper top support for a mast only. It is constructed from heavy galvanized steel. The bracket is adjustable from 13 to 21 inches from the tower. The kit includes (1) ANTM431, (1) ANTC484 Mounting Clamp, and (1) adjustable steel band clamp.



ANTM433

The ANTM433 Side Mount Kit is designed to mount an antenna 15 inches from a tower. It is fabricated from heavy-duty galvanized steel. (2) ANTC484 clamps are included in the kit.



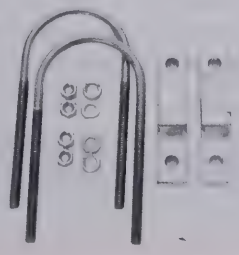


ANTC484

The ANTC484 mounting clamp consists of a steel V-bolt assembly and associated hardware, combined with a back plate of heavy-duty galvanized steel. It will mount to 3-inch round members or 2-inch angled members.

ANTC485

Dual U Bolt clamp set for F2 series collinears. For mounting to round member towers from 1.5"-3" O.D.

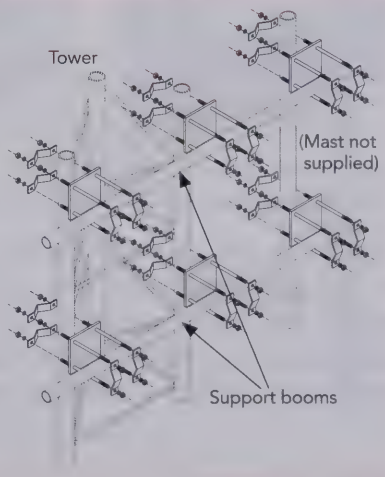


ANTM434

The ANTM434 Adjustable Side Mount Kit mounts across a tower face to provide a standoff mounting configuration. The antenna can be positioned 2 to 8 feet from the tower. Mounting hardware is galvanized steel. Supplied without support booms or mast. For use on tower legs from 1.5"-3.5" O.D.

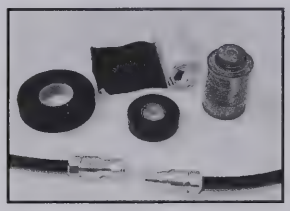
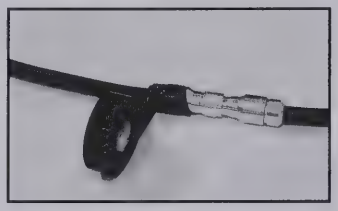
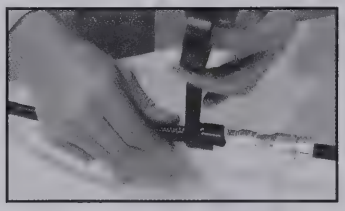
ANTM434-M

Includes support booms. 2 inch Sch. 40 galvanized steel.



ANTENNA CONNECTION WEATHERPROOFING

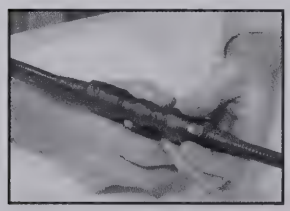
The primary purpose of wrapping a connection is to seal it against moisture intrusion. The procedure illustrated here will give excellent results if done properly, and will last for years. The required materials are shown below: vinyl tape, butyl tape, mastic, and Scotch-Kote.

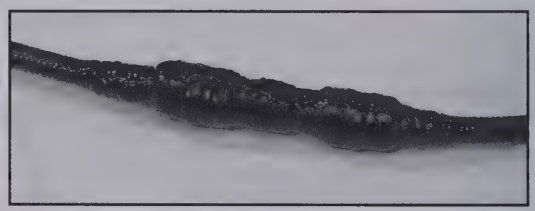




After a connection has been made and tested to verify that it has been properly done, it needs to be sealed. Begin by wrapping vinyl tape as shown to cover the connectors and a portion of both cables. Stretch the tape a minor amount as it is wound onto the cable, the connectors and then onto the other cable. Wrap this so that each new layer covers half of the previous wrap. Keep the wraps neat and as smooth as possible.

The second step is to wrap a second layer over the first layer, but wrap it in the other direction as shown. These two layers will keep the connection clean and tight. The next step is to wrap a layer of vinyl tape with the adhesive side out, as shown. Begin by folding the tape onto itself at a 45 degree angle. This provides a sticky surface to help bond the the next layer of tape to the connection.

The next step is to wrap the entire connection with the butyl tape. This layer provides the majority of the moisture shielding. The final step is to coat the entire butyl layer with Scotch-Kote. Coat a portion of each cable and the entire final layer of tape.





This material works very quickly to fuse the last layer together and to the cable jacket. After the Scotch-Kote has dried, encapsulate the finished connection with the mastic material.

It is best to secure the cable to the support on either side of the connection, not over the connection. One tie on each side is best, and spaced so as to support the connection, but not to disrupt the surface of the seal. This provides support, but will not compromise the seal you have just made. Added insurance against abrasion may be achieved by placing a single layer of vinyl tape onto the support where the connection will rest before tying the cable down. This provides some cushioning between the connection and the support.

All specifications subject to change without notice

ANTPD 204, 206
LOW BAND RF POWER DIVIDERS

Telewave Low Band RF Power Dividers divide up to 500 Watts of power from a single source over 2 outputs. These dividers are available in two overlapping frequency bands from 24 MHz to 72 MHz, with very low VSWR and insertion loss. Power is divided equally to each output port.

Telewave power dividers are custom machined from solid 6061-T6 aluminum stock. These devices utilize solid metal conductors for all internal RF paths, enabling high power handling and extremely low insertion loss. No coaxial cabling of any kind is used internally, and no tuning is required for full band coverage. The standard connector type is N Female, and 7-16 DIN can also be supplied as an option for higher power applications.

Telewave power dividers also feature our high-tech Txylan™ coating, which provides exceptional protection from water, corrosive chemicals, salt spray, and windblown abrasives.

This poly-polar coating beads water, and is chemically bonded to the metal surface of the device, reducing and often preventing ice adhesion, and does not chip or flake.

In situations where port-to-port isolation is not required, Telewave power dividers can also be used to feed two receivers from a common antenna, with less than 0.25 dB insertion loss.

ANTPD206

ANTPD204

SPECIFICATIONS	
Frequency range	204: 24-54 MHz 206: 45-72 MHz
Input power (typ)	500 watts
Impedance	50 ohm
VSWR	1.3:1 or less
Insertion loss (total to all ports)	0.15 dB or less
Power division (2 way)	50%
Connectors	N Female or 7-16 DIN (opt.)
Dimensions (HWD) in. (cm)	204: 76 x 1 x 1 (193 x 2.5 x 2.5) 206: 51 x 1 x 1 (129.5 x 2.5 x 2.5)
Weight lb. (kg)	204: 9 (4.1) 206: 6 (2.7)

ANTPD SERIES
RF POWER DIVIDERS

Telewave RF Power Dividers divide up to 500 Watts of power from a single source over 2, 3, or 4 outputs. Dividers are available in overlapping frequency bands from 24 MHz to 2.5 GHz, with very low VSWR and insertion loss. Power is divided equally to each output port.

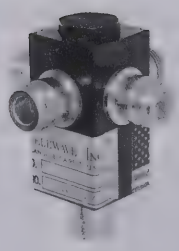
Telewave power dividers are custom machined from solid 6061-T6 aluminum stock. These devices utilize solid metal conductors for all internal RF paths, enabling 500 watt continuous power handling and extremely low insertion loss. No coaxial cabling of any kind is used internally, and no tuning is required for full band coverage. The standard connector type is N Female, and 7-16 DIN can also be supplied as an option for high power applications.

Telewave power dividers also feature our high-tech Txylan™ coating, which provides exceptional protection from water, corrosive chemicals, salt spray, and windblown abrasives. This poly-polar coating beads water, and is chemically bonded to the metal surface of the device, and does not chip or flake. The size and shape of these dividers lends itself to many possible mounting applications, including panels, masts, or tower legs, providing maximum installation flexibility.

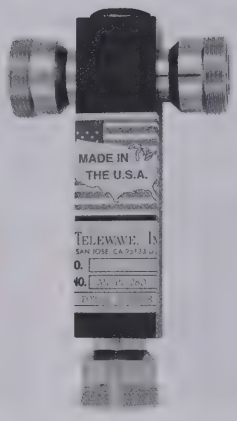
In situations where port-to-port isolation is not required, Telewave power dividers can also be used to feed several receivers from a common antenna, with less than 0.25 dB insertion loss.

FREQUENCY RANGES	
ANTPDx04	24-54 MHz
ANTPDx06	45-72 MHz
ANTPDx08	65-110 MHz
ANTPDx1	90-210 MHz
ANTPDx2	180-250 MHz
ANTPDx3	250-450 MHz
ANTPDx4	350-600 MHz
ANTPDx7	675-850 MHz
ANTPDx8	760-920 MHz
ANTPDx9	900-1100 MHz
ANTPDx14	1350-1600 MHz
ANTPDx18	1700-2050 MHz
ANTPDx24	2000-2500 MHz

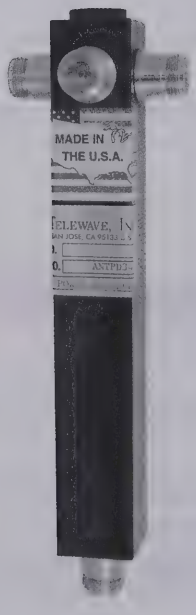
POWER DIVISION (equal output to each port)		
ANTPD2xx	2 - Way	50%
ANTPD3xx	3 - Way	33.3%
ANTPD4xx	4 - Way	25%



ANTPD424



ANTPD28D



ANTPD34

ANTPD21

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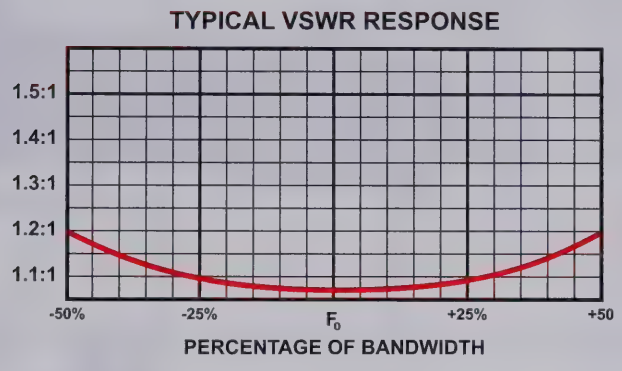
ANTPD SERIES
RF POWER DIVIDERS



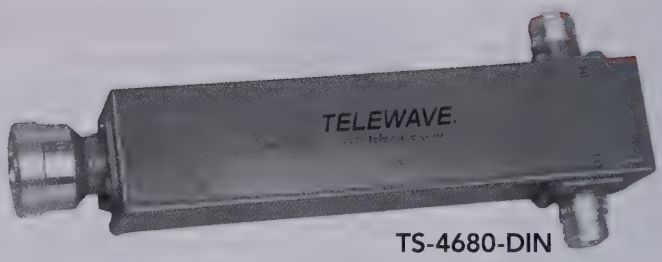
SPECIFICATIONS		
Frequency range	24-2500 MHz	
Input power (typ)	500 Watts	
Impedance	50 ohms	
VSWR (max)	1.3:1	
Connectors	N Female or 7-16 DIN (opt.)	
INSERTION LOSS (total - from input to all output ports)		
ANTPDx04, x06, x08, x1	24-110 MHz	0.1 dB
ANTPDx2	180-250 MHz	0.15 dB
ANTPDx3	250-450 MHz	0.18 dB
ANTPDx4, x7, x8	350-920 MHz	0.2 dB
ANTPDx9, x14, x18, x24	900-2500 MHz	0.22 dB

N FEMALE			7-16 DIN		
MODEL	DIMENSIONS	WEIGHT	MODEL	DIMENSIONS	WEIGHT
ANTPDx04	76" L x 1.125" x 1.125"	9 lb.	ANTPDx04D	76.25" L x 1.125" x 1.125"	11 lb.
ANTPDx06	51" L x 1.125" x 1.125"	6 lb.	ANTPDx06D	51.25" L x 1.125" x 1.125"	7 lb.
ANTPDx08	38.5" L x 1.125" x 1.125"	5.5 lb.	ANTPDx08D	38.75" L x 1.125" x 1.125"	6.5 lb.
ANTPDx1	21" L x 1.125" x 1.125"	4.5 lb.	ANTPDx1D	21.25" L x 1.125" x 1.125"	5.5 lb.
ANTPDx2	15.5" L x 1.125" x 1.125"	3.5 lb.	ANTPDx2D	15.75" L x 1.125" x 1.125"	4.5 lb.
ANTPDx3	11" L x 1.125" x 1.125"	3 lb.	ANTPDx3D	11.25" L x 1.125" x 1.125"	4 lb.
ANTPDx4	8.5" L x 1.125" x 1.125"	2 lb.	ANTPDx4D	8.75" L x 1.125" x 1.125"	3 lb.
ANTPDx7	5.5" L x 1.125" x 1.125"	1.5 lb.	ANTPDx7D	5.75" L x 1.125" x 1.125"	2.5 lb.
ANTPDx8	5.25" L x 1.125" x 1.125"	1.5 lb.	ANTPDx8D	6.0" L x 1.125" x 1.125"	2.5 lb.
ANTPDx9	5" L x 1.125" x 1.125"	1.5 lb.	ANTPDx9D	5.25" L x 1.125" x 1.125"	2.5 lb.
ANTPDx14	3.5" L x 1.125" x 1.125"	1 lb.	ANTPDx14D	3.75" L x 1.125" x 1.125"	2 lb.
ANTPDx18	3.25" L x 1.125" x 1.125"	1 lb.	ANTPDx18D	3.5" L x 1.125" x 1.125"	2 lb.
ANTPDx24	3.0" L x 1.125" x 1.125"	1 lb.	ANTPDx24D	3.25" L x 1.125" x 1.125"	2 lb.

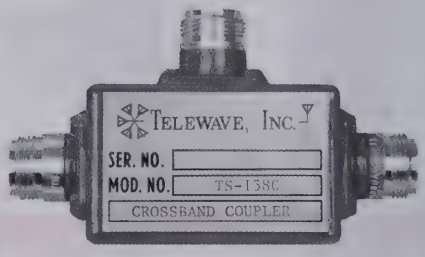
TS-15xx, TS-22xx, TS-46/47xx SERIES

Telewave Crossband Couplers allow transmitters, receivers, and antennas in the 150, 220, 450, and 700/800 MHz bands to share a common feedline. A single coupler can be used to couple two radios to a multiband antenna, or a multiband radio to two antennas. Two couplers are used with two radios and two antennas.

The ability to share a feedline between systems on different bands simplifies installation, while reducing cost and tower loading. No tuning is required for full band coverage, and each unit is completely weather-sealed for zero maintenance and long service.



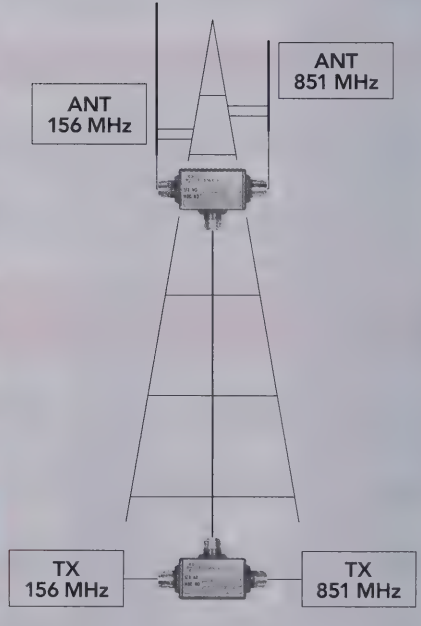
TS-4680-DIN



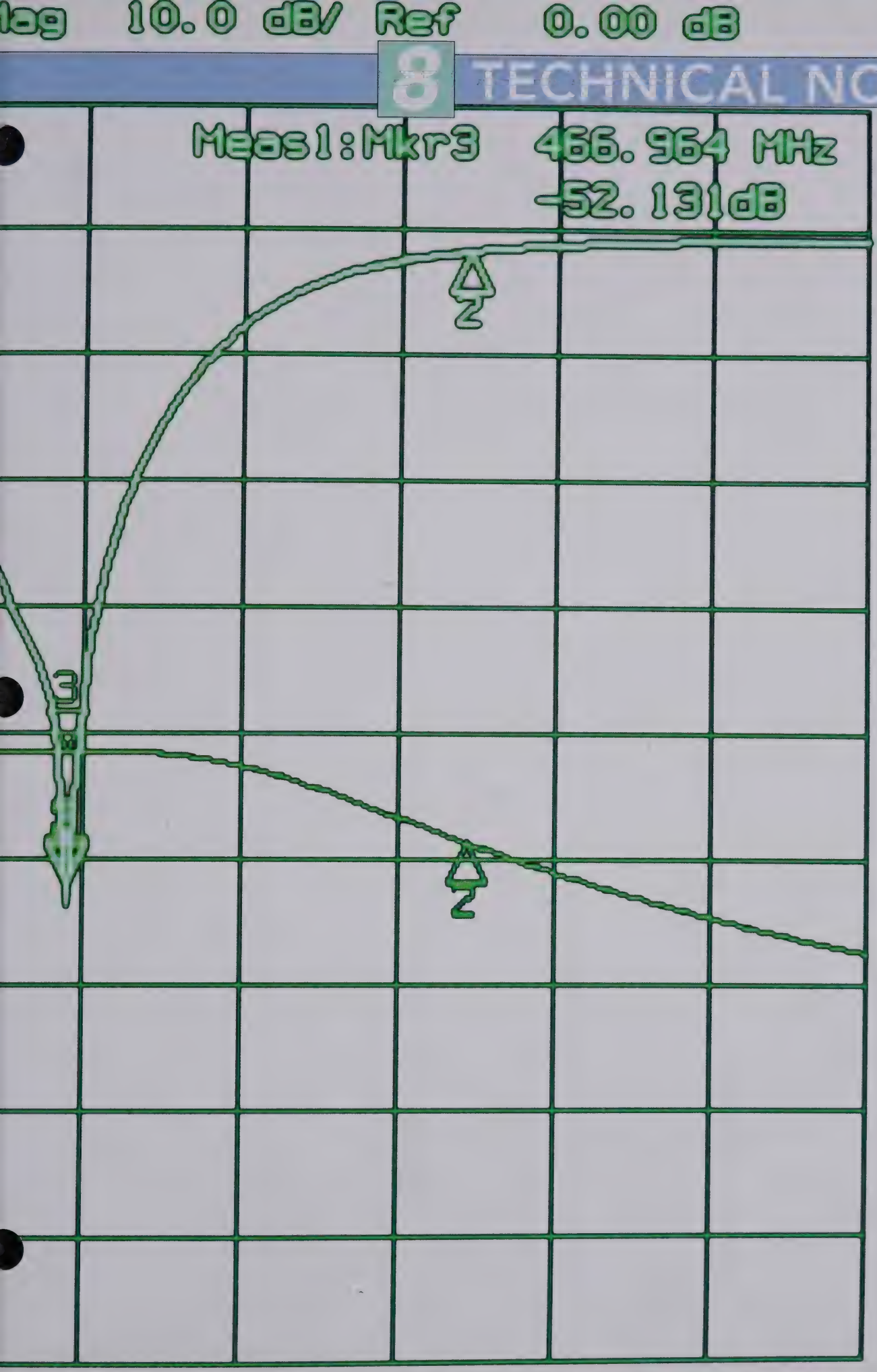
TS-1580

MODEL	FREQUENCY RANGE	POWER
TS-1545	132-174 & 406-470 MHz	150 watts
TS-1546	132-174 & 450-512 MHz	150 watts
TS-1570	132-174 & 763-869 MHz	150 watts
TS-1580	132-174 & 806-902 MHz	150 watts
TS-1590	132-174 & 850-960 MHz	150 watts
TS-2246	219-225 & 406-512 MHz	150 watts
TS-1545H	132-174 & 406-470 MHz	400 watts
TS-1546H	132-174 & 450-512 MHz	400 watts
TS-1570H	132-174 & 763-869 MHz	400 watts
TS-1580H	132-174 & 806-902 MHz	400 watts
TS-1590H	132-174 & 850-960 MHz	400 watts
TS-2246H	219-225 & 406-512 MHz	400 watts
TS-4670	440-470 & 763-869 MHz	400 watts
TS-4680	440-470 & 806-870 MHz	400 watts
TS-4690	440-470 & 896-932 MHz	400 watts
TS-4770	470-512 & 763-869 MHz	400 watts
TS-4780	470-512 & 896-932 MHz	400 watts
TS-154676	150-174 / 450-470 / 763-869 MHz	400 watts

COMMON SPECIFICATIONS	TS-15XX	TS-22XX, TS-46/47XX
Impedance / VSWR (typ/max)	50 ohms / 1.3:1 / 1.5:1	
Isolation (min / typ.)	23 dB / 27 dB	25 dB / 30 dB
Insertion loss per pair (max)	0.2 dB	
Temperature range	-30°C to +60°C	
Connectors	N Male or Female, 7-16 DIN M/F (opt.)	
Dimensions (HWL) in.	1.5 x 2.25 x 3.75	1 x 1.5 x 6.5
Weight lb.	0.5	1



All specifications subject to change without notice


lag 10.0 dB/ Ref 0.00 dB
Meas1:Mkr3 466.964 MHz
-52.131dB
1:
-1.
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TUNING INSTRUCTIONS

- Single / Dual Isolators
- Pass-Reject Cavity and Duplexer
- Pass Cavity
- VSWR / Return Loss

SINGLE FERRITE ISOLATORS
TUNING INSTRUCTIONS

The following tuning instructions are provided for use when only a wattmeter is available. Tuning range with this method is approximately +/- 1 MHz at VHF, +/- 2 MHz at UHF, and +/- 5 MHz at 800/900 MHz. Maximum tuning range requires a more complex procedure and a network analyzer, and is also available from Telewave for a nominal fee. The initial tuning should be done at the lowest power available to reduce the possibility of damage to the transmitter or cavities during the tuning procedure. The transmitter must be turned off to prevent damage to the output stages whenever connections are changed.

Install the isolator in its permanent mounting position if possible. Connect the cable from the transmitter directly to the isolator port A (Fig. I). Remove the snap plugs from adjustment holes #1, and #2. Adjustment #3 is factory set and should not be changed. Connect a terminating wattmeter, or a wattmeter with a load attached, to the output port B. Using a non-metallic tool, tune adjustment #1 and #2 for a maximum reading.

Remove the wattmeter and the dummy load and connect the antenna or cavity to the isolator (Fig. 2). Remove the supplied termination from port C and install the wattmeter and termination in its place. Now tune the cavity* for a minimum reading through the wattmeter. This will establish the highest Q of the cavity and maximum power to the antenna. Adjustment #2 may be "touched up" at this time. Adjust for a minimum reading on the wattmeter. If the reading is high or the load becomes hot, problems may exist with the antenna or transmission line. Further testing should be done. When testing / tuning is complete, remove the wattmeter and reconnect the supplied termination to port C.

**When a cavity is under power, high RF currents and voltages exist on the internal surfaces. Tuning under full TX power may damage the cavity. If there are no other options, use the lowest power available with minimum tuning adjustments.*

FIGURE 1

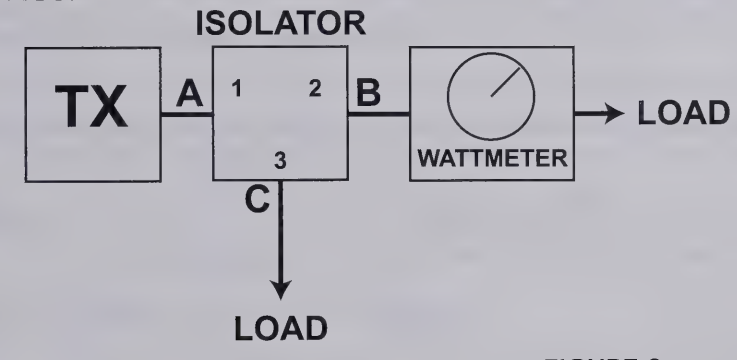
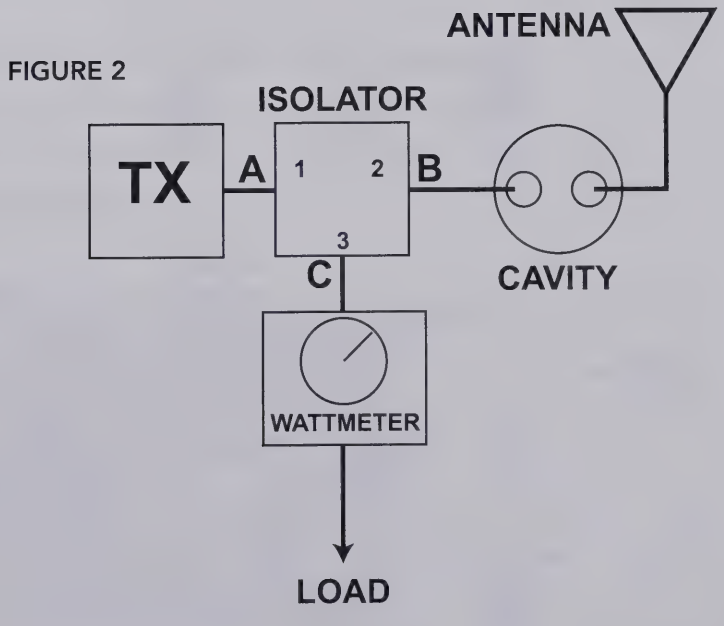


FIGURE 2



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TELEWAVE, INC.

DUAL FERRITE ISOLATORS
BASIC TUNING INSTRUCTIONS

The following tuning instructions are provided for use when only a wattmeter is available. Tuning range with this method is approximately +/- 1 MHz at VHF, +/- 2 MHz at UHF, and +/- 5 MHz at 800/900 MHz. Maximum tuning range requires a more complex procedure and a network analyzer, and is also available from Telewave for a nominal fee. The initial tuning should be done at the lowest power available to prevent damage to the transmitter or cavities during the tuning procedure. Turn the transmitter off to prevent damage whenever connections are changed. This procedure can also be used to tune 2 single isolators joined with a barrel connector.

Install the isolator in its permanent mounting position if possible. Connect the cable from the transmitter directly to the isolator port A (Fig. 1). Remove the snap plugs from adjustment holes #1, #2, #3 and #4. Adjustment #5 & #6 are factory set and should not be changed. Connect a terminating wattmeter, or a wattmeter with an appropriate load attached, to the output port B. Using a non-metallic tool, tune adjustment #1, #2, #3, & #4 for a maximum reading.

Special Note - Models T-7560 and T-8660 do not have a hole #3. This is not required above 700 MHz. Models in all bands may have reversed connections for cable routing. (Fig. 4) **Port numbers always have the same function, regardless of location.**

Remove the wattmeter and the dummy load and connect the antenna and cavity to the isolator. Remove the supplied termination from port C and connect the wattmeter and termination in its place (Fig. 2). Now tune adjustment #2 & #3 for minimum reading on the wattmeter. Retune these adjustments several times to ensure a minimum reading. Remove the wattmeter and termination, and reconnect the original termination to port C. Next, remove the termination from port D and install the wattmeter & load in its place (Fig. 3). Now tune adjustment #4 for minimum reading on the wattmeter.

Finally, tune the cavity* (Fig. 3) for a minimum reading through the wattmeter. This will establish the highest Q of the cavity and maximum power to the antenna. Adjustment #4 may be "touched up" at this time. Adjust for a minimum reading on the wattmeter. If the reading is high or the load becomes hot, problems may exist with the antenna or transmission line. Further testing should be done. When testing / tuning is complete, remove the wattmeter and reconnect the supplied termination to port D.

**When a cavity is under power, high RF currents exist on the internal surfaces. Tuning under full power may damage the cavity. If there are no other options, use the lowest power available with minimum tuning adjustments.*

FIGURE 1

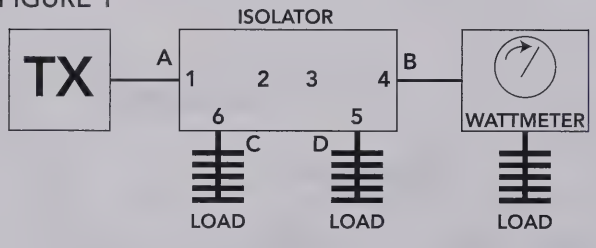


FIGURE 2

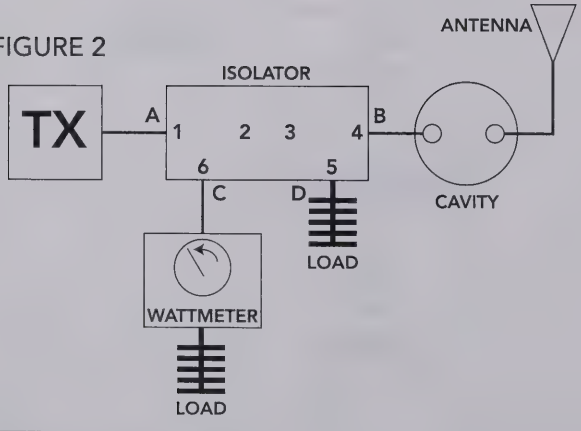


FIGURE 3

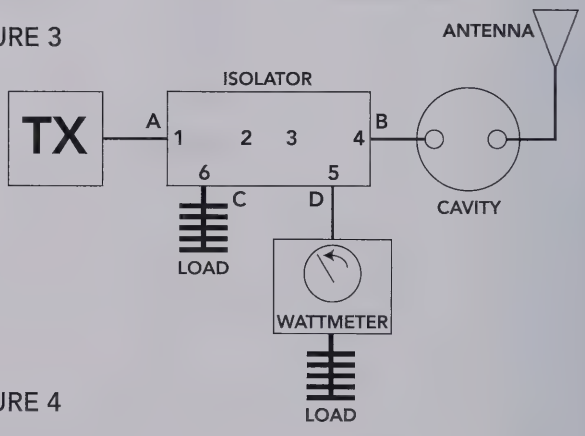
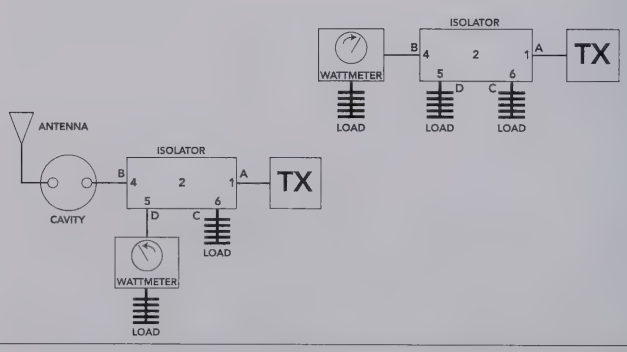


FIGURE 4



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TWDS-8005 Rev. 3/11

PASS CAVITY TUNING

IMPORTANT:
All cavities and cavity-based devices are factory tuned to the exact frequencies indicated on the label. No further tuning or optimization is necessary. If frequency or insertion loss must be changed, Telewave recommends that the equipment be returned to the factory to ensure optimum performance. The instructions in this document are for use only if factory service is not practical.

TEST EQUIPMENT MINIMUM REQUIREMENTS:

1. Calibrated RF signal generator with 0 dBm output.
2. Calibrated frequency counter or meter.
3. Calibrated RF indicator such as a network analyzer or spectrum analyzer, with sensitivity of at least 80 dB below the RF generator output.
   Tools required: 7/16" wrench and nut-driver, medium and small flat-blade screwdrivers.

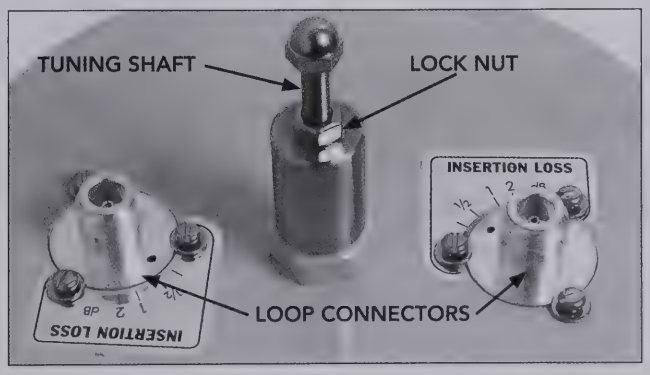
NOTE: When transmitter power is passing through a cavity, high RF voltages and currents exist on the internal surfaces. Cavity tuning should be performed using a signal generator only. If no other RF source is available, use the lowest output power available and make only minimal adjustments.

1. TUNING THE PASS FREQUENCY

A. Adjust the signal generator to the desired pass frequency at 0 dBm output.
B. Connect the signal generator to one cavity connector, and the monitor or analyzer to the other side.
C. Loosen the 7/16" locking nut on the center tuning shaft, and tune the shaft of the cavity for maximum response as indicated on the analyzer.

2. INSERTION LOSS ADJUSTMENT

A. Adjust the signal generator to the desired pass frequency at 0 dBm output.
B. Loosen the three retaining screws around the loop connector. Rotate the loop until the analyzer indicates the desired insertion loss, and balanced return loss. Tighten the retaining screws, and repeat Step 1.



TELEWAVE, INC.

PASS-REJECT CAVITY AND DUPLEXER TUNING

IMPORTANT:
All cavities and cavity-based devices are factory tuned to the exact frequencies indicated on the label. No further tuning or optimization is necessary. If frequency or insertion loss must be changed, Telewave recommends that the equipment be returned to the factory to ensure optimum performance. The instructions in this document are for use only if factory service is not practical.

TEST EQUIPMENT MINIMUM REQUIREMENTS:

1. Calibrated RF signal generator with 0 dBm output.
2. Calibrated frequency counter or meter.
3. Calibrated RF indicator such as a network analyzer or spectrum analyzer, with sensitivity of at least 80 dB below the RF generator output.
   Tools required: 7/16" wrench and nut-driver, medium and small flat-blade screwdrivers.

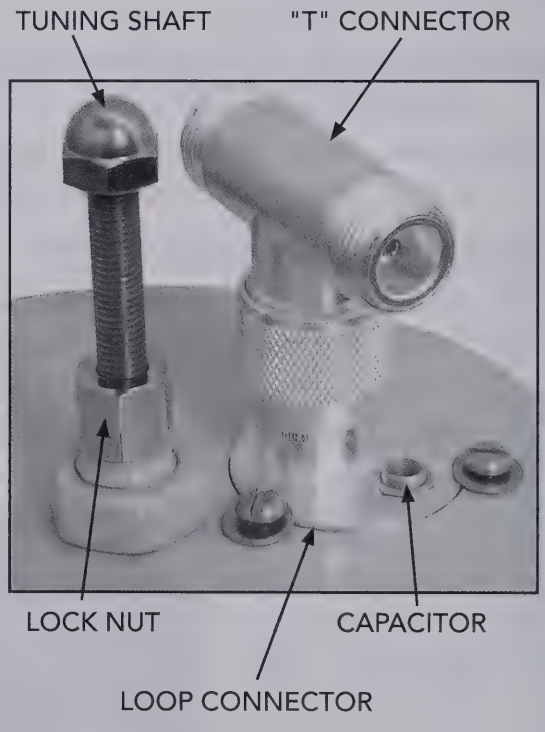
NOTE: When transmitter power is passing through a cavity, high RF voltages and currents exist on the internal surfaces. Cavity tuning should be performed using a signal generator only. If no other RF source is available, use the lowest output power available and make only minimal adjustments.

1. TUNING THE PASS FREQUENCY

A. Adjust the signal generator to the desired pass frequency at 0 dBm output.
B. Connect the signal generator to one side of the cavity "T" connector, and the monitor or analyzer to the other side.
C. Loosen the 7/16" locking nut on the center tuning shaft, and tune the shaft of the cavity for maximum response as indicated on the analyzer.

2. TUNING THE REJECT FREQUENCY

A. Adjust the signal generator to the desired reject frequency at 0 dBm output.
B. Connect the signal generator to one side of the cavity "T" connector, and the monitor or analyzer to the other side.
C. Tune the capacitor for maximum attenuation of the output signal, as indicated on the analyzer.



All specifications subject to change without notice

PASS-REJECT CAVITY AND DUPLEXER TUNING

3. INSERTION LOSS ADJUSTMENT

A. Adjust the signal generator to the desired pass frequency at 0 dBm output.

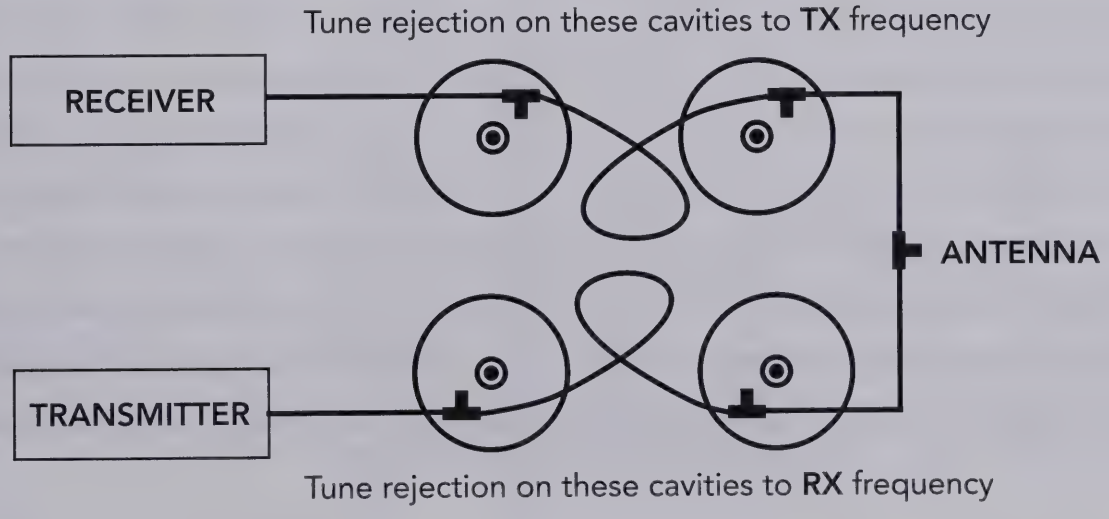
B. Loosen the three retaining screws around the loop connector. Rotate the loop until the analyzer indicates the desired insertion loss. Tighten the retaining screws, and repeat Steps 1 and 2. An increase in the insertion loss will also increase the attenuation at the reject frequency. Minimum insertion loss occurs when the capacitor is on the opposite side of the connector, away from the center tuning rod.

NOTE: All tuning adjustments are mutually dependent. This means that when you adjust the capacitor, the insertion loss will change and the loop position may have to be readjusted. The center tuning may have changed as well. Multiple adjustments will be required to achieve the best performance.

4. PASS-REJECT DUPLEXER TUNING PROCEDURE

A. Examine the labels on the top of the duplexer, and locate the TX and RX ports. The cavity set for TX will be PASS-TX and REJECT-RX. The cavity set for RX will be PASS-RX and REJECT-TX. If TX and RX are not marked, then you must determine which port is connected to the lower frequency device, and which is connected to the higher frequency device. The cavity set for the low frequency device will be PASS-LOW and REJECT-HIGH. The cavity set for the high frequency device will be PASS-HIGH and REJECT-LOW.

B. Tune one cavity at a time using Steps 1-3. The reject frequency of one set of cavities is always tuned to the pass frequency of the other set.



TELEWAVE, INC.

VSWR / RETURN LOSS CHART

VSWR • Return Loss • Transmitted Power % • Reflected Power %

VSWR	VSWR (dB)	RETURN LOSS (dB)	TRANS. LOSS (dB)	VOLT. REFL. COEFF.	POWER TRANS. (%)	POWER REFL. (%)	VSWR	VSWR (dB)	RETURN LOSS (dB)	TRANS. LOSS (dB)	VOLT. REFL. COEFF.	POWER TRANS. (%)	POWER REFL. (%)
1.00	0.00	∞	0.00	0.00	100.00	0.00	1.64	4.30	12.30	0.26	0.24	94.10	5.90
1.01	0.10	46.10	0.00	0.00	100.00	0.00	1.66	4.40	12.10	0.28	0.25	93.80	6.20
1.02	0.20	40.10	0.00	0.01	100.00	0.00	1.68	4.50	11.90	0.29	0.25	93.60	6.40
1.03	0.30	36.60	0.00	0.01	100.00	0.00	1.70	4.60	11.70	0.30	0.26	93.30	6.70
1.04	0.30	34.20	0.00	0.02	100.00	0.00	1.72	4.70	11.50	0.32	0.26	93.00	7.00
1.05	0.40	32.30	0.00	0.02	99.90	0.10	1.74	4.80	11.40	0.33	0.27	92.70	7.30
1.06	0.50	30.70	0.00	0.03	99.90	0.10	1.76	4.90	11.20	0.34	0.28	92.40	7.60
1.07	0.60	29.40	0.01	0.03	99.90	0.10	1.78	5.00	11.00	0.36	0.28	92.10	7.90
1.08	0.70	28.30	0.01	0.04	99.90	0.10	1.80	5.10	10.90	0.37	0.29	91.80	8.20
1.09	0.70	27.30	0.01	0.04	99.80	0.20	1.82	5.20	10.70	0.38	0.29	91.50	8.50
1.10	0.80	26.40	0.01	0.05	99.80	0.20	1.84	5.30	10.60	0.40	0.30	91.30	8.70
1.11	0.90	25.70	0.01	0.05	99.70	0.30	1.86	5.40	10.40	0.41	0.30	91.00	9.00
1.12	1.00	24.90	0.01	0.06	99.70	0.30	1.88	5.50	10.30	0.43	0.31	90.70	9.30
1.13	1.10	24.30	0.02	0.06	99.60	0.40	1.90	5.60	10.20	0.44	0.31	90.40	9.60
1.14	1.10	23.70	0.02	0.07	99.60	0.40	1.92	5.70	10.00	0.45	0.32	90.10	9.90
1.15	1.20	23.10	0.02	0.07	99.50	0.50	1.94	5.80	9.90	0.47	0.32	89.80	10.20
1.16	1.30	22.60	0.02	0.07	99.50	0.50	1.96	5.80	9.80	0.48	0.32	89.50	10.50
1.17	1.40	22.10	0.03	0.08	99.40	0.60	1.98	5.90	9.70	0.50	0.33	89.20	10.80
1.18	1.40	21.70	0.03	0.08	99.30	0.70	2.00	6.00	9.50	0.51	0.33	88.90	11.10
1.19	1.50	21.20	0.03	0.09	99.20	0.80	2.50	8.00	7.40	0.88	0.43	81.60	18.40
1.20	1.60	20.80	0.04	0.09	99.20	0.80	3.00	9.50	6.00	1.25	0.50	75.00	25.00
1.21	1.70	20.40	0.04	0.10	99.10	0.90	3.50	10.90	5.10	1.60	0.56	69.10	30.90
1.22	1.70	20.10	0.04	0.10	99.00	1.00	4.00	12.00	4.40	1.94	0.60	64.00	36.00
1.23	1.80	19.70	0.05	0.10	98.90	1.10	4.50	13.10	3.90	2.26	0.64	59.50	40.50
1.24	1.90	19.40	0.05	0.11	98.90	1.10	5.00	14.00	3.50	2.55	0.67	55.60	44.40
1.25	1.90	19.10	0.05	0.11	98.80	1.20	5.50	14.80	3.20	2.83	0.69	52.10	47.90
1.26	2.00	18.80	0.06	0.12	98.70	1.30	6.00	15.60	2.90	3.10	0.71	49.00	51.00
1.27	2.10	18.50	0.06	0.12	98.60	1.40	6.50	16.30	2.70	3.35	0.73	46.20	53.80
1.28	2.10	18.20	0.07	0.12	98.50	1.50	7.00	16.90	2.50	3.59	0.75	43.70	56.20
1.29	2.20	17.90	0.07	0.13	98.40	1.60	7.50	17.50	2.30	3.82	0.76	41.50	58.50
1.30	2.30	17.70	0.08	0.13	98.30	1.70	8.00	18.10	2.20	4.03	0.78	39.50	60.50
1.32	2.40	17.20	0.08	0.14	98.10	1.90	8.50	18.60	2.10	4.24	0.79	37.70	62.30
1.34	2.50	16.80	0.09	0.15	97.90	2.10	9.00	19.10	1.90	4.44	0.80	36.00	64.00
1.36	2.70	16.30	0.10	0.15	97.70	2.30	9.50	19.60	1.80	4.63	0.81	34.50	65.50
1.38	2.80	15.90	0.11	0.16	97.50	2.50	10.00	20.00	1.70	4.81	0.82	33.10	66.90
1.40	2.90	15.60	0.12	0.17	97.20	2.80	11.00	20.80	1.60	5.15	0.83	30.60	69.40
1.42	3.00	15.20	0.13	0.17	97.00	3.00	12.00	21.60	1.50	5.47	0.85	28.40	71.60
1.44	3.20	14.90	0.14	0.18	96.70	3.30	13.00	22.30	1.30	5.76	0.86	26.50	73.50
1.46	3.30	14.60	0.16	0.19	96.50	3.50	14.00	22.90	1.20	6.04	0.87	24.90	75.10
1.48	3.40	14.30	0.17	0.19	96.30	3.70	15.00	23.50	1.20	6.30	0.88	23.40	76.60
1.50	3.50	14.00	0.18	0.20	96.00	4.00	16.00	24.10	1.10	6.55	0.88	22.10	77.90
1.52	3.60	13.70	0.19	0.21	95.70	4.30	17.00	24.60	1.00	6.78	0.89	21.00	79.00
1.54	3.80	13.40	0.20	0.21	95.50	4.50	18.00	25.10	1.00	7.00	0.89	19.90	80.10
1.56	3.90	13.20	0.21	0.22	95.20	4.80	19.00	25.60	0.90	7.21	0.90	19.00	81.00
1.58	4.00	13.00	0.23	0.22	94.90	5.10	20.00	26.00	0.90	7.41	0.90	18.10	81.90
1.60	4.10	12.70	0.24	0.23	94.70	5.30	25.00	28.00	0.70	8.30	0.92	14.80	85.20
1.62	4.20	12.50	0.25	0.24	94.40	5.60	30.00	29.50	0.60	9.04	0.94	12.50	87.50

All specifications subject to change without notice

INDEX

1 TRANSMITTER COMBINING	FREQ. (MHz)	DESCRIPTION	
LOWBAND COMBINERS	30-88	LOWBAND LOW LOSS COMBINERS	3
M104-150-4TPC	148-170	4 CHANNEL LOW LOSS COMBINER	4
M108-150-TRM	148-174	8 TO 10 CHANNEL LOW LOSS COMBINER	5
M101-150-8TRM19	148-174	LOW LOSS VHF COMBINER FOR CLOSE SPACING	6
M101-150-8TRM	148-174	LOW LOSS VHF COMBINER	7
M106-450-4, 8TPC	400-512	COMPACT TRANSMITTER COMBINER PANELS	8
M107-250, 350, 450, TP	200-512	LOW LOSS TRANSMITTER COMBINER PANELS	9
M107-250, 350, 450, TRM	200-512	EXPANDABLE TRUNKING COMBINERS	10
M108-450-10TRM	400-512	UHF TRUNKING TRANSMITTER COMBINER	11
M108-450-8TRM3Q	400-512	LOW LOSS UHF TRUNKING COMBINER	12
M101-450-8TRM19-3Q	400-512	LOW LOSS UHF COMBINER FOR CLOSE SPACING	13
M101-450-8TRM	406-512	LOW LOSS UHF COMBINER	14
M108-760-10TRM	746-869	LOW LOSS 760/860 MHz TRUNKING COMBINER	15
M106-860-5TP, 10TP	851-869	COMPACT TRUNKING COMBINER PANELS	16
M107-860-5TRM-HP, 10TRM-HP	851-869	COMPACT TRUNKING COMBINER 175 WATTS	17
M101-860-10TRM	806-869	LOW LOSS 800/900 MHz TRUNKING COMBINER	18
TC860	851-869	CERAMIC ENHANCED TRUNKING COMBINER	19
TW860-2HRB1N, 4HRB1N	851-869	COMPACT HYBRID COMBINERS	20
M108-900-10TRM3Q	896-941	LOW LOSS 900 MHz TRUNKING COMBINER	21
M101-900-10TRMH	896-941	900 MHz HYBRID TRUNKING COMBINER	22
BANDPASS/NOTCH COMBINERS	66-512	1 NOTCH, 1-3 PASS CAVITIES	23
HYBRID COMBINERS	118-960	2 AND 4 CHANNEL HYBRID COMBINERS	24

2 RECEIVER MULTICOUPLERS	FREQ. (MHz)	DESCRIPTION	
TWR2, TWR4 PANELS	132-960	RECEIVER DISTRIBUTION PANELS	25
TWR8 / 16 / 24 STD PANELS	30-960	RECEIVER DISTRIBUTION PANELS	26
TWR8 / 16 -1R COMPACT PANELS	30-960	COMPACT RECEIVER PANELS - 8-16 CHANNELS	28
TWR24 / 32 -2R PANELS	30-960	COMPACT RECEIVER PANELS - 24-32 CHANNELS	30
PS- SERIES	10-1000	RECEIVER POWER SPLITTERS	32
TLA SERIES	30-960	LOW NOISE BIPOLAR INLINE PREAMPLIFIERS	33
TGA SERIES	132-960	PHEMT PREAMPLIFIERS	34
TWR1 SERIES	132-960	BROADBAND RACK MOUNT PREAMPLIFIERS	35
TOWER TOP PREAMPLIFIERS	300-901	TOWER TOP PREAMPLIFIERS	36
TTPA-4544	455-512	TOWERTOP PREAMPLIFIER / PRESELECTOR	37
TTPA-8626, 8644, 8648	806-960	TOWER TOP PREAMPS AND BASE UNIT	38
TTBS-4586		TOWER TOP BASE POWER SUPPLY	39
TPCP-1342C, TPCP-1343C	118-136	COMPACT AIRBAND PRESELECTORS	40
TPCP-1344C, TPCP-1344CM	118-136	COMPACT AIRBAND PRESELECTOR	41
TPCP-1442C, TPCP-1443C	135-151	COMPACT BANDPASS PRESELECTORS	42
TPCP-1444C, TPCP-1444CM	135-151	COMPACT BANDPASS PRESELECTOR	43
TPCP-1446C	135-151	COMPACT BANDPASS PRESELECTOR	44
TPCP-1414, 1514, 1614, 1714	140-180	COMPACT BANDPASS PRESELECTORS	45
TPCP-1542C, TPCP-1543C	148-174	COMPACT BANDPASS PRESELECTORS	46
TPCP-1544C, TPCP-1544CM	148-174	COMPACT BANDPASS PRESELECTOR	47
TPCP-1546C	148-174	COMPACT BANDPASS PRESELECTOR	48
TPCP-1554, 1556	148-174	BANDPASS PRESELECTORS	49
TPCP-2244, 2246	200-300	BANDPASS PRESELECTORS	50
TPCP-3544, 3546, 3548	300-400	BANDPASS PRESELECTORS	51
TPCP-4542	400-512	BANDPASS PRESELECTOR	52
TPCP-4544, 4546, 4548	400-512	BANDPASS PRESELECTORS	53
TPCP-45215, 46215, 45215-2	450-470	BANDPASS PRESELECTORS	54
TPCP-4514	450-470	COMPACT BANDPASS PRESELECTOR	55
TPCP-8642, TPCP-8644	806-960	BANDPASS PRESELECTORS	56
TTPP-8642	806-960	BANDPASS PRESELECTOR	57
TPCP-8626, TPCF-8926	806-890	COMBLINE PRESELECTORS	58

3 POWER MONITORING	FREQ. (MHz)	DESCRIPTION	
MODEL 44L1, L1P	2-200	BROADBAND RF WATTMETER	59
MODEL 44A, AP	20-1000	BROADBAND RF WATTMETER	61
PM-1A, 2A SERIES	30-960	RF POWER MONITORS - SINGLE, DUAL	63
PM1C1S	30-960	RF WATTMETER / ALARM PANEL	64
PM5C1S	30-960	RF WATTMETER / ALARM PANEL	65
PM10C2S1C	30-960	RF WATTMETER PANEL	66

4 ISOLATORS & LOADS	FREQ. (MHz)	DESCRIPTION	
TWL-01, 35, 60	0-2500	COAXIAL RF TERMINATIONS	67
TWL-50, 75, 100, 100HS	0-2500	COAXIAL RF TERMINATIONS	68
TWL-150, TWL-300	0-2500	HIGH POWER TERMINATIONS	69
T-1030, 1060	66-108	SINGLE / DUAL FERRITE ISOLATORS	70
T-1530, 1560	118-174	SINGLE / DUAL FERRITE ISOLATORS	71
T-1530M, 1560M	148-174	SINGLE / DUAL FERRITE ISOLATORS	72
T-2230, 2260	216-252	SINGLE / DUAL FERRITE ISOLATORS	73
T-3530, 3560	300-400	SINGLE / DUAL FERRITE ISOLATORS	74
T-4530, 4560	400-512	SINGLE / DUAL FERRITE ISOLATORS	75
T-7530, 7560	700-800	SINGLE / DUAL FERRITE ISOLATORS	76
T-8630, 8660	806-960	SINGLE / DUAL FERRITE ISOLATORS	77
HIGH POWER ISOLATORS	148-960	SINGLE AND DUAL STAGE TO 400 WATTS	78
TS150, 450, 900 SERIES	118-960	INTERMOD SUPPRESSION PANELS	79
THRP - REPEATER PANEL	138-960	HIGH PERFORMANCE REPEATER PANEL	80

5 CAVITIES & FILTERS	FREQ. (MHz)	DESCRIPTION	
TWPC-0310, 0410	30-50	BANDPASS CAVITIES	81
TWPC-0412-1, TWNC-0412-1	40-50	BANDPASS & NOTCH CAVITIES	83
TWPC-1005-1,2	88-108	BANDPASS CAVITIES	85
TWPC-1008-1, 2	88-108	BANDPASS CAVITIES	87
TPRC-1005-1, 2	88-108	PASS/REJECT CAVITIES	89
TPRC-1008-1, 2	88-108	PASS/REJECT CAVITIES	91
TWNC-1005-1, 2	88-108	NOTCH CAVITIES	93
TWNC-1008-1, 2	88-108	NOTCH CAVITIES	95
TWPC-1405-1, 2, 3	118-148	BANDPASS CAVITIES	97
TWPC-1408-1, 2	118-148	BANDPASS CAVITIES	99
TWPC-1410-1, 2	118-148	BANDPASS CAVITIES	101
TPRC-1405-1,2	118-148	PASS/REJECT CAVITIES	103
TWPC-1505-1, 2, 3	148-174	BANDPASS CAVITIES	105
TWPC-1508-1, 2	148-174	BANDPASS CAVITIES	107
TWPC-1510-1, 2	148-174	BANDPASS CAVITIES	109
TPRC-1505-1, 2	148-174	PASS/REJECT CAVITIES	111
TWNC-1505-1, 2	148-174	NOTCH CAVITIES	113
TWPC-2205-1, 2, 3	200-300	BANDPASS CAVITIES	115
TWPC-2208-1, 2	200-300	BANDPASS CAVITIES	117
TWPC-3505-1, 2, 3	300-400	BANDPASS CAVITIES	119
TWPC-4504-1, 2, 3	400-512	BANDPASS CAVITIES	121
TWPC-4505-1, 2, 3	400-512	BANDPASS CAVITIES - ¾ WAVE	123
TWPC-4510-1, 2	400-512	BANDPASS CAVITIES	125
TWPC-7908-1, -2	776-825	BANDPASS CAVITY	127
TWPC-8608-1,2	800-970	BANDPASS CAVITIES	129
TLF SERIES	40-960	TRANSMITTER LOW PASS FILTERS	131
THF SERIES	40-960	HIGH PASS FILTERS	132
TWX-50, 150	50-150	RECEIVER CRYSTAL FILTERS	133

6 DUPLEXERS	FREQ. (MHz)	DESCRIPTION	
TPRD-0354, 0454	30-50	PASS / REJECT DUPLEXERS	135
TPRD-0384, 0484	30-50	PASS / REJECT DUPLEXERS	136
TPRD-0754	66-88	PASS / REJECT DUPLEXER	137
TPRD-1084	88-108	PASS / REJECT DUPLEXER	138
TPRD-1344C, CM	118-136	COMPACT PASS/REJECT DUPLEXER	139
TPRD-1444C, CM	135-151	COMPACT PASS/REJECT DUPLEXER	140
TPRD-1446C	135-151	COMPACT PASS/REJECT DUPLEXER	141
TPRD-1454, 1456	118-148	PASS/REJECT DUPLEXERS	142
TPRD-1484, 1486	118-148	PASS/REJECT DUPLEXERS	144
TPRD-1544F	148-174	COMPACT PASS/REJECT DUPLEXER	145
TPRD-1543C	148-174	COMPACT PASS/REJECT DUPLEXER	146
TPRD-1544C, CM	148-174	COMPACT PASS/REJECT DUPLEXER	147
TPRD-1546C	148-174	COMPACT PASS/REJECT DUPLEXER	148
TPCD-1553, 1554, 1556	148-174	BANDPASS DUPLEXERS	149
TPRD-1554, 1556	144-174	PASS/REJECT DUPLEXERS	151
TPRD-1566	136-174	PASS/REJECT DUPLEXER - DUAL NOTCH	153
TPRD-1584, 1586	148-174	PASS/REJECT DUPLEXERS	155
TPRD-2254	200-300	PASS/REJECT DUPLEXER	156
TPCD-4554, 4556	400-512	BANDPASS DUPLEXERS - ¾-WAVE	157
TPRD-4544, 4744	450-470	PASS-REJECT DUPLEXERS	159

TPRD-4546	400-512	PASS-REJECT DUPLEXER....161
TPRD-4554, 4556	400-512	BANDPASS/REJECT DUPLEXERS - ¾-WAVE....163
TTPD-7644	763-869	BANDPASS/REJECT DUPLEXER....165
TTPD-8642, 8644	806-960	BANDPASS/REJECT DUPLEXER....167
TPRD-8644	763-869	PASS/REJECT DUPLEXER....169
TPRD-9044	890-960	PASS/REJECT DUPLEXER....171
TPRD-12044	1240-1300	PASS-REJECT DUPLEXER....173
TPCD-8626	806-960	COMBLINE DUPLEXER....175
TPCD-8626HP	806-960	HIGH POWER COMBLINE DUPLEXER....176
TMND-0716, 0816	70-85	MID-BAND MOBILE DUPLEXERS....178
TMND-1516, 1616, 1716	148-174	MOBILE DUPLEXERS....179
TMND-4416, 4516, 4616	440-470	MOBILE DUPLEXERS....180
TMND-4716, 4816, 4916, 5016	470-512	COMPACT MOBILE DUPLEXER....181
TMND-7616	769-805	COMPACT MOBILE DUPLEXER....182
TMND-8616	860-870	COMPACT MOBILE DUPLEXER....183

7 ANTENNAS	**FREQ. (MHz)**	**DESCRIPTION**
COLLINEAR ANTENNAS		185
ANT125F2	118-136	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....186
ANT135F2	125-150	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....187
ANT140F2	135-165	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....188
ANT150F2	148-174	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....189
ANT150F6	138-175	FIBERGLASS COLLINEAR ANTENNA 6 dBd....190
ANT195F2	174-216	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....191
ANT220F2	195-260	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....192
ANT220F6	216-225	FIBERGLASS COLLINEAR ANTENNA 6 dBd....193
ANT355F6	340-370	FIBERGLASS COLLINEAR ANTENNA 6 dBd....194
ANT385F6	370-400	FIBERGLASS COLLINEAR ANTENNA 6 dBd....195
ANT400F2	360-455	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....196
ANT415F6	405-440	FIBERGLASS COLLINEAR ANTENNA 6 dBd....197
ANT415F8	395-436	FIBERGLASS COLLINEAR ANTENNA 8 dBd....198
ANT425F2	380-470	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....199
ANT450F2	420-480	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....200
ANT450F6	445-480	FIBERGLASS COLLINEAR ANTENNA 6 dBd....201
ANT450F10	430-475	FIBERGLASS COLLINEAR ANTENNA 10 dBd....202
ANT480F2	450-512	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....203
ANT500F6	470-512	FIBERGLASS COLLINEAR ANTENNA 6 dBd....204
ANT500F10	470-512	FIBERGLASS COLLINEAR ANTENNA 10 dBd....205
ANT734-960F2	734-960	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....206
ANT770F2	734-806	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....207
ANT770F6	746-806	FIBERGLASS COLLINEAR ANTENNA 6 dBd....208
ANT825F6	745-860	FIBERGLASS COLLINEAR ANTENNA 6 dBd....209
ANT850F2	806-896	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....210
ANT850F6	806-896	FIBERGLASS COLLINEAR ANTENNA 6 dBd....211
ANT850F10	806-896	FIBERGLASS COLLINEAR ANTENNA 10 dBd....212
ANT900F2	880-960	FIBERGLASS COLLINEAR ANTENNA 2.5 dBd....213
ANT940F6	870-965	FIBERGLASS COLLINEAR ANTENNA 6 dBd....214
ANT940F10	870-965	FIBERGLASS COLLINEAR ANTENNA 10 dBd....215
ANT960F0	900-960	WIRELESS DATA ANTENNA 2 dBd....216
F2 COLLINEAR INSTALLATION		INSTALLATION F2 ANTENNAS....217
F6/8/10 COLLINEAR INSTALLATION		INSTALLATION F6-F8-F10 ANTENNAS....218
ANTC482 CLAMP INSTALLATION		ANTC482....219
ANTC483 CLAMP INSTALLATION		ANTC483 / 483SS....220
DIPOLE ANTENNAS		221
ANT37D	33.5-41	SINGLE DIPOLE....222
ANT40D	37.5-44.5	SINGLE DIPOLE....223
ANT42D	38.5-47	SINGLE DIPOLE....224
ANT44D	41.5-48	SINGLE DIPOLE....225
ANT50D	45-54	SINGLE DIPOLE....226
ANT70D	63-78	SINGLE DIPOLE....227
ANT75D	66-88	SINGLE DIPOLE....228
ANT90D	88-108	SINGLE DIPOLE FM BROADCAST....229
ANT120D, D3	110-138	SINGLE AND DIPOLE ARRAY 1 TO 6 dBd....230
ANT150D, D3, D6-9	138-174	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd....231
ANT150D7-12	138-174	DIPOLE AND DIPOLE ARRAY 7 TO 12 dBd....232
ANT220D, D3, D6-9	216-252	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd....233

ANT275D, D3, D6-9	230-330	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 234
ANT350D, D3, D6-9	300-360	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 235
ANT375D, D3, D6-9	345-405	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 236
ANT400D, D3, D6-9	360-450	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 237
ANT425D, D3, D6-9	380-470	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 238
ANT450D, D3, D6-9	406-512	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 239
ANT450D7-12	406-512	DIPOLE AND DIPOLE ARRAY 7 TO 12 dBd 240
ANT500D, D3, D6-9	470-550	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 241
ANT750D, D3, D6-9	700-825	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 242
ANT900D, D3, D6-9	800-1000	DIPOLE AND DIPOLE ARRAY 1 TO 9 dBd 243
DIPOLE MOUNTING		DIPOLE MOUNTING INSTRUCTIONS 244
DIPOLE PATTERN ADJUST	30-300	DIPOLE PATTERN ADJUSTMENT 245
DIPOLE PATTERN ADJUST	300-1000	DIPOLE PATTERN ADJUSTMENT 247
YAGI ANTENNAS		 249
ANT144Y5-WR	138-152	YAGI ANTENNA 5 dBd 250
ANT150Y7-WR	148-174	YAGI ANTENNA 5 dBd / 7 dBi 251
ANT150Y10H	144-174	YAGI ANTENNA 10 dBd 252
ANT220Y7-WR	216-240	YAGI ANTENNA 5 dBd / 7 dBi 253
ANT390Y5-WR	370-410	YAGI ANTENNA 5 dBd 254
ANT410Y10-WR	405-420	YAGI ANTENNA 10 dBd 255
ANT420Y10-WR	415-450	YAGI ANTENNA 10 dBd 256
ANT430Y10-WR	420-440	YAGI ANTENNA 10 dBd 257
ANT440Y10-WR	438-455	YAGI ANTENNA 10 dBd 258
ANT450Y5-WR	420-470	YAGI ANTENNA 5 dBd 259
ANT450Y7-WR	450-470	YAGI ANTENNA 7 dBd 260
ANT450Y10-WR	450-470	YAGI ANTENNA 10 dBd 261
ANT475Y5-WR	450-512	YAGI ANTENNA 5 dBd 262
ANT490Y10-WR	470-500	YAGI ANTENNA 10 dBd 263
ANT500Y10-WR	485-512	YAGI ANTENNA 10 dBd 264
ANT740Y8-WR	698-787	YAGI ANTENNA 8 dBd 265
ANT750Y5-WR	734-806	YAGI ANTENNA 5 dBd 266
ANT830Y10-WR	800-870	YAGI ANTENNA 10 dBd 267
ANT850Y10-WR	824-896	YAGI ANTENNA 10 dBd 268
ANT930Y10-WR	885-975	YAGI ANTENNA 10.2 dBd / 12.3 dBi 269
ANT930Y12-WR	880-960	YAGI ANTENNA 12.2 dBd / 14.3 dBi 270
ANT1470Y12-WR	1425-1535	YAGI ANTENNA 12.2 dBd / 14.3 dBi 271
ANT1800Y10-WR	1710-1880	YAGI ANTENNA 10.2 dBd / 12.3 dBi 272
ANT1920Y9-WR	1850-1990	YAGI ANTENNA 9.3 dBd / 11.4 dBi 273
ANT1920Y12-WR	1850-1990	YAGI ANTENNA 12.2 dBd / 14.3 dBi 274
ANT2045Y12-WR	1920-2170	YAGI ANTENNA 12 dBd / 14.1 dBi 275
ANT2350Y12-WR	2300-2500	YAGI ANTENNA 12 dBd / 14.1 dBi 276
ANT2400Y12-WR	2400-2500	YAGI ANTENNA 12 dBd / 14.1 dBi 277
ANT2600Y12-WR	2500-2700	YAGI ANTENNA 12 dBd / 14.1 dBi 278
YAGI INSTALLATION SHEET	138-960	INSTALLATION FOR YAGI ANTENNAS 279
YAGI INSTALLATION SHEET	1000-2700	INSTALLATION FOR YAGI ANTENNAS 280
WIDEBAND ANTENNAS		 281
ANT220K	30-3000	WIDEBAND DISCONE ANTENNA 282
ANT260K, KT	75-3000	WIDEBAND DISCONE ANTENNA 283
ANT280S	118-3000	WIDEBAND DISCONE ANTENNA 284
ANT400K, KS	400-3000	WIDEBAND DISCONE ANTENNA 285
ANT500WR	500-3000	WIDEBAND DIRECTIONAL ANTENNA 286
MOUNTING HARDWARE		ANTENNA MOUNTING HARDWARE 287
ANTENNA CONNECTION SEALING		ANTENNA CONNECTION WEATHERPROOFING 288
ANTPD 204, 206	24-72	LOW BAND RF POWER DIVIDERS 289
ANTPD SERIES	24-2500	RF POWER DIVIDERS 290
TS-1546, TS-1580, TS-4680	132-960	CROSSBAND COUPLERS 292

8 **TECHNICAL NOTES**	**DESCRIPTION**
SINGLE ISOLATOR TUNING	SINGLE ISOLATOR TUNING 293
DUAL ISOLATOR TUNING	DUAL ISOLATOR TUNING 294
PASS CAVITY TUNING	PASS CAVITY TUNING 295
PASS-REJECT CAVITY/DUPLEXER TUNING	P-R CAVITY/DUPLEXER TUNING 296
VSWR / RETURN LOSS CHART	VSWR / RETURN LOSS CHART 298

NOTES

NOTES

Product Warranty / Terms of Sale

Products sold by Telewave, Inc. (Seller) and covered by this Warranty are warranted to be free from defects in material and workmanship at the time of and for the period specified below after delivery to the Buyer. Seller's entire warranty obligation is limited to making adjustments by repair, replacement, or refunding the purchase price of any product which is returned to the Seller as provided below within the specified period from the date of shipment by the Seller. In no event shall Seller be liable for direct, special, or consequential damages for breach of warranty.

Warranty periods:
Antennas and mounting hardware - 5 years
All other products - 1 year

Adjustment will not be allowed for products which have been damaged by lightning, subjected to abuse, improper application or installation, alteration or accident, or negligence in use, storage, transportation or handling. Alteration or removal of the serial number or identification markings voids the Warranty. Seller shall have the right of final determination as to the existence and cause of a defect, whether adjustment will be allowed, and if allowed, whether adjustment will be by repair, replacement, or refund. Where adjustment is not allowed, a charge of 5% of the original purchase price will be made to the Buyer to cover the Seller's cost of inspection and handling.

Shipping and packaging instructions must be obtained from the Seller before products are returned for adjustment. The Buyer will pay for packing, transportation, and transit insurance costs for returned products. The Seller reserves the right to discontinue models at any time or change specifications, design, or price without notice and without incurring any obligation. Products will be returned to the Buyer with transportation cost collect.

Subject to the provisions of its "Patent Indemnity" clause, the Seller also warrants that it has the right to sell its products, that the Buyer shall have and enjoy quite possession thereof as against any lawful claims existing at the time of the sale by the Seller, and that said products are free from any charge of encumbrance in favor of third persons existing at the time of sale by the Seller.

The foregoing constitutes the Seller's entire warranty, express, implied or statutory with respect to its products and states the full extent of its liability for breach of Warranty and for damages, whether direct, special or consequential resulting form any such breach. No change whatsoever thereto shall be binding upon the seller unless made in writing and signed by a duly authorized representative of the Seller.

RETURN / RMA PROCEDURE:

Please contact Telewave via phone, fax, or email to discuss any product issues with a sales engineer. Many issues occur due to incorrect installation, misconfiguration or irregularities within an existing system, and these can often be resolved at no charge without return of products.

1. Contact Telewave for technical assistance at sales@telewave.com or 1-800-331-3396.
2. Telewave will transfer the call or email to the appropriate department.
3. If it is determined that the product(s) should be returned, the Telewave RMA Dept will ask customer to provide billing and return shipping addresses, product model and serial number (if applicable), date of purchase, and where item was purchased.
4. Customer ships product(s) back to Telewave at customer's expense:
   - -- Write RMA number on the outside of the box(es)
   - -- Include a description of the problem with the product(s)
   - -- Ship via a trackable shipping method (UPS, Fedex, etc.)
   - -- Retain proof of shipment and tracking information
5. Product(s) are received by Telewave and evaluated by the appropriate department. Customer is contacted by RMA department before any charges are incurred.
6. Telewave reserves the right to charge for parts, labor, and freight in the event that the issue is not covered under warranty.
7. Telewave will return original, repaired or replacement item at customer's expense unless covered by warranty.

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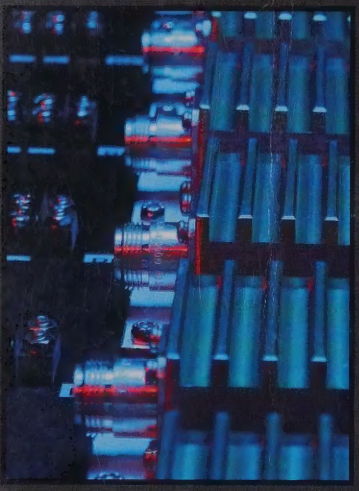

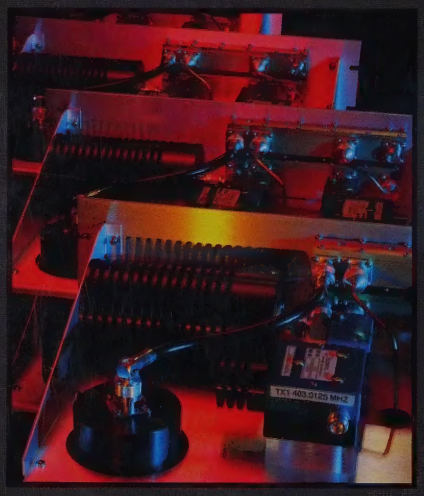
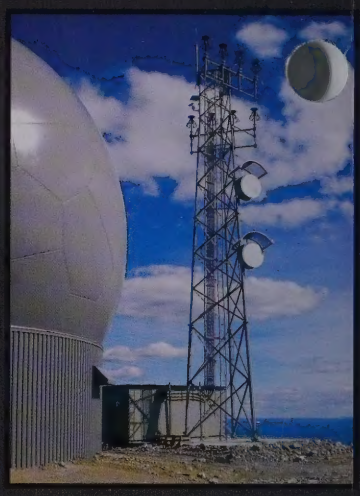

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